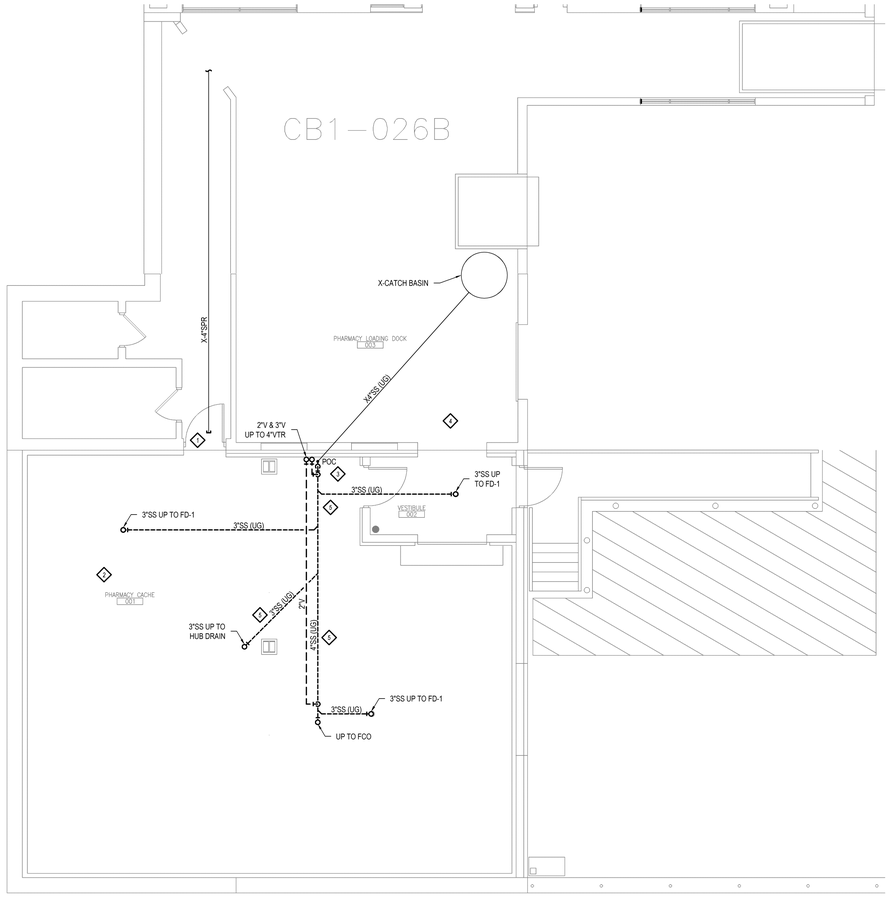


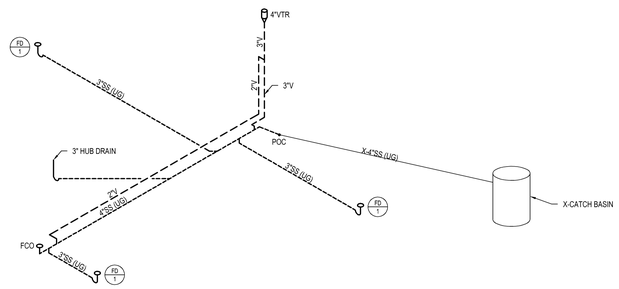
KEY NOTES

1. CAP EXISTING WET FIRE PROTECTION SPRINKLER PIPING BACK TO EXISTING CORRIDOR.
2. COORDINATE EXACT LOCATION OF NEW HUB DRAIN WITH NEW STRUCTURAL FOOTING AND COLUMN.
3. CONNECT NEW 4"SS TO X-4"SS PIPING. FIELD VERIFY EXACT SIZE AND LOCATION. COORDINATE WITH STRUCTURAL FOOTING.
4. EXTEND EXISTING DRY SPRINKLER PIPING FROM LOADING DOCK AREA TO PHARMACY CACHE AND PROVIDE A COMPLETE SPRINKLER SYSTEM PER NFPA AND VA REQUIREMENTS. FIELD VERIFY EXISTING SPRINKLER PIPING SIZE AND LOCATION. ROUTE NEW PIPING TO MAINTAIN MAXIMUM CLEARANCE.
5. COORDINATE NEW SANITARY SEWER PIPING WITH STRUCTURAL FOOTING.

F2 PHARMACY CACHE PLUMBING NEW PLAN

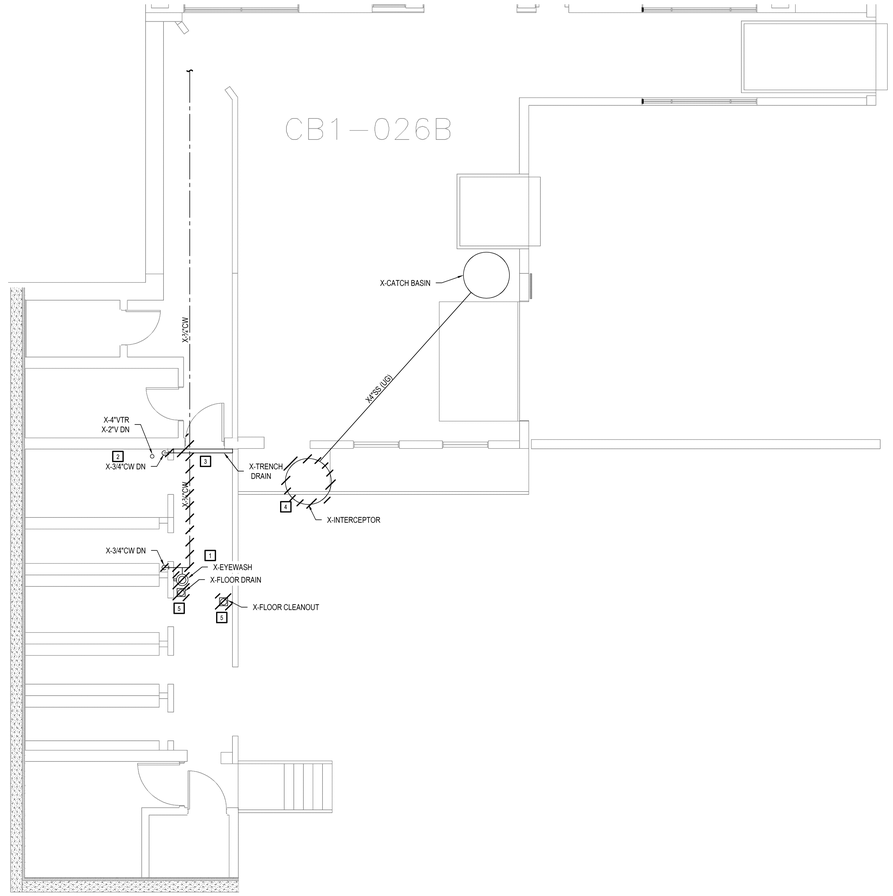
3/16" = 1'-0"

PLAN NORTH



F3 PLUMBING SANITARY AND VENT ISOMETRIC

N.T.S.



DEMOLITION NOTES

1. REMOVE EXISTING EYEWASH STATION AND ASSOCIATED PIPING. CAP PIPING BACK TO MAIN.
2. REMOVE EXISTING HOSE BIBB, VACUUM BREAK, ISOLATION VALVE AND PIPING. CAP PIPING BACK TO MAIN.
3. REMOVE EXISTING TRENCH DRAIN, SANITARY AND VENT PIPING. PATCH EXISTING ROOF PENETRATION.
4. EXISTING INTERCEPTOR SHALL BE REMOVED. FIELD VERIFY EXACT LOCATION AND SIZE OF EXISTING INTERCEPTOR.
5. REMOVE EXISTING FLOOR DRAIN AND ASSOCIATE PIPING. FIELD VERIFY EXACT SIZE AND LOCATION.

F1 PHARMACY CACHE PLUMBING DEMO PLAN

3/16" = 1'-0"

PLAN NORTH

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
DN	DOWN
CO	CLEANOUT
FCO	FLOOR CLEANOUT
UG	UNDGERGROUND
WCO	WALL CLEANOUT
FD-*	FLOOR DRAIN
HB-*	HOSE BIBB
X-*	EXISTING

PLUMBING LEGEND

- NEW PLUMBING EQUIPMENT
- EXISTING PLUMBING COMPONENT
- DEMOLISHED PLUMBING COMPONENT
- SS — NEW SANITARY SEWER
- X-SS — EXISTING SANITARY SEWER
- V — NEW SANITARY VENT
- X-V — EXISTING SANITARY VENT
- UNDERGROUND PIPING
- KEY NOTE
- DEMO NOTE
- BALL VALVE
- FLOOR DRAIN/ROOF DRAIN
- PIPE BREAK
- PIPE CAPPED END
- PIPE CLEANOUT
- PIPE ELBOW/TEE DOWN
- PIPE ELBOW/TEE UP
- POINT OF CONNECTION

PLUMBING FIXTURE SCHEDULE

MARK	MANUFACTURER	MODEL	DESCRIPTION	WSFU			DFU
				HW	CW	TOTAL	VALUE
FD-1	JOSAM	30000-A SERIES	ADJUSTABLE CAST IRON FLOOR DRAIN, 2 PIECE BODY WITH DOUBLE DRAINAGE FLANGE, FLASHING COLLAR, WEEPHOLES, BOTTOM OUTLET, ADJUSTABLE ROUND CHROME STRAINER.	--	--	--	3.0

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE HIS WORK WITH EXISTING CONDITIONS AND WITH THE WORK OF OTHER TRADES.
2. THESE DRAWINGS ARE A DIAGRAMMATIC REPRESENTATION OF WORK TO BE ACCOMPLISHED AND AS SUCH DO NOT SHOW ALL REQUIRED OFFSETS OF PIPING. CONTRACTOR SHALL INSTALL MATERIAL AND EQUIPMENT AS TO CONFORM TO THE STRUCTURE, EQUIPMENT CONNECTIONS AND MAINTAIN HEADROOM, PASSAGEWAY AND WORKING CLEARANCES.
3. THE EXISTING OR DEMOLITION PLANS ARE BASED OFF OF EXISTING AS-BUILTS, CONSTRUCTION DRAWINGS & CASUAL SITE WALK-THROUGHS. THE CONTRACTOR SHALL VISIT THE SITE, REVIEW OTHER DISCIPLINE DEMOLITION DRAWINGS & PROVIDE DISCONNECTION OR RELOCATION OF ALL NECESSARY EQUIPMENT FOR THE COMPLETION OF THIS PROJECT.
4. KEYNOTES PERTAIN ONLY TO THE DRAWING THEY ARE LOCATED ON.
5. CONTRACTOR WILL BE RESPONSIBLE TO REMOVE ANY AND ALL ABANDONED PIPING, DUCTWORK, AND/OR CONDUIT TO BE CAPPED BELOW FLOOR PENETRATION OR MAIN.
6. CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE OF CONSTRUCTION BOUNDARY LIMITS UNLESS NOTED ON PLANS. COORDINATE SUCH WORK WITH VA.
7. EQUIPMENT SELECTIONS ARE BASED OFF NOTED MANUFACTURERS AND MODELS LISTED ON SCHEDULES. ANY ALTERNATE EQUIPMENT SUBMITTED SHALL MEET OR EXCEED ALL PERFORMANCE CAPACITIES AND FALL WITHIN PHYSICAL DIMENSIONS AND WEIGHTS OF SCHEDULED EQUIPMENT. ALTERNATE SUBMITTALS SHALL MEET ALL SYSTEM REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MODIFICATIONS (STRUCTURAL, ELECTRICAL, MECHANICAL, ETC.) NECESSARY TO ACCOMMODATE ALTERNATE EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.
8. CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING AND VERIFYING ALL PIPING LOCATIONS AND THE SUBSEQUENT EFFECTS OF THE SHUT OFF OF THE PIPING BEFORE PROCEEDING WITH ANY DEMOLITION OR INSTALLATION.
9. CONTRACTOR SHALL FIELD VERIFY ALL UNDERGROUND PIPING EITHER BY X-RAY OR CAMERA PRIOR TO SAWCUTTING THE FLOOR.

100% CONSTRUCTION DOCUMENTS

Revisions:	Date

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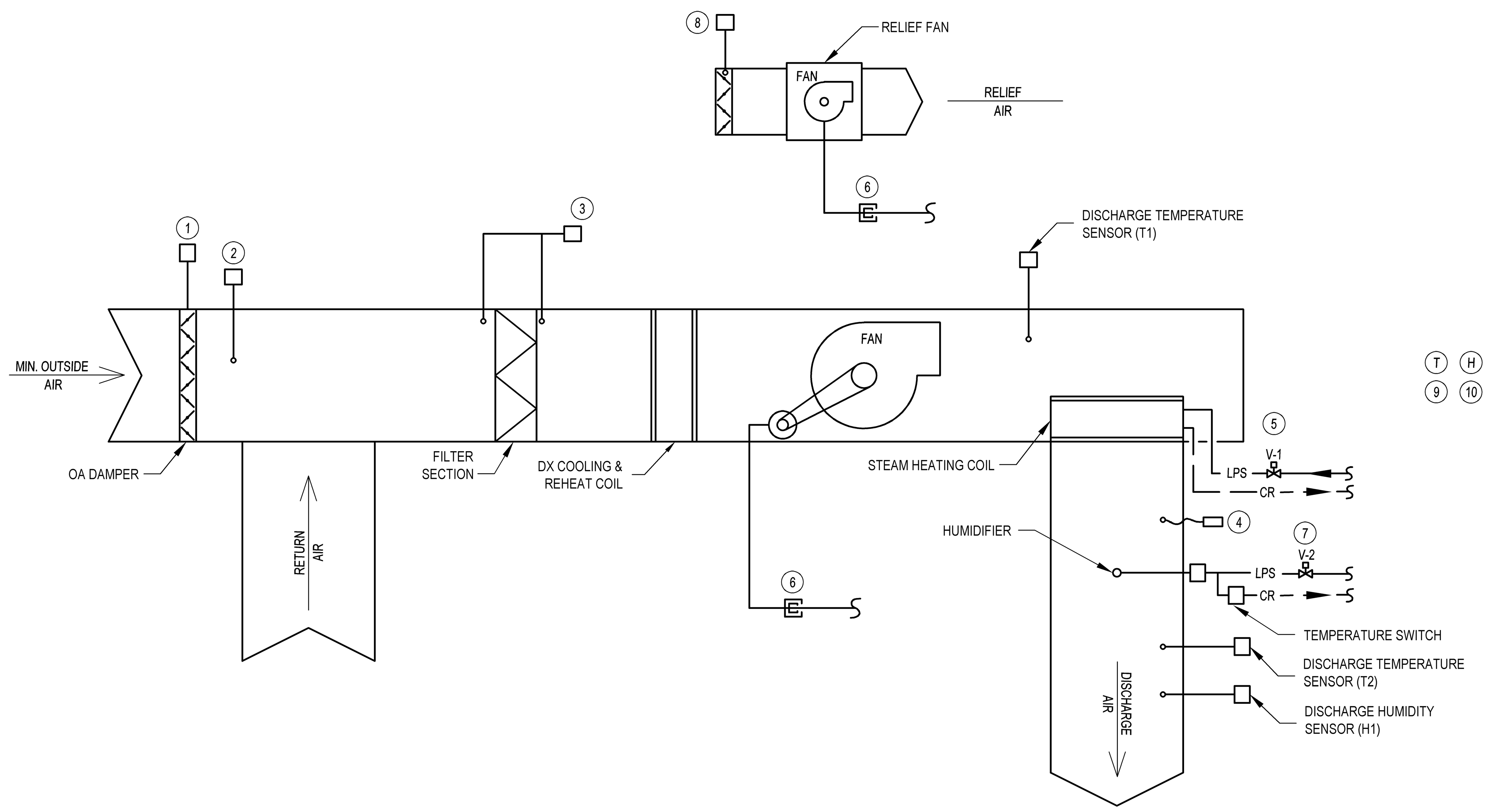
Drawing Title	PLUMBING PLANS, GENERAL NOTES, LEGENDS AND SCHEDULES
Approved: Project Director	
Project Title	Middleton VAH Construct Pharmacy Cache
Location	Madison, WI
Date	May 13, 2013
Checked	TJK
Drawn	CDW
Project Number	607-13-101
Building Number	19
Drawing Number	P001

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



AIR HANDLING UNIT KEYED NOTES:

1. OA MOTORIZED DAMPER WITH END SWITCH
2. OA TEMPERATURE SENSOR
3. PRE-FILTER DIFFERENTIAL PRESSURE SENSOR
4. FREEZE STAT
5. V-1 - STEAM HEATING CONTROL VALVE (WITH POSITION INDICATOR)
6. CURRENT SWITCH FOR FAN STATUS
7. V-2 - HUMIDIFIER CONTROL VALVE (WITH POSITION INDICATOR)
8. RF MOTORIZED DAMPER (WITH END SWITCH)
9. SPACE TEMPERATURE SENSOR
10. SPACE HUMIDITY SENSOR

PACKAGED ROOFTOP AIR HANDLING UNIT

NO SCALE

GENERAL

SYSTEM CONSISTS OF A CONSTANT VOLUME AIR HANDLING UNIT AND RELIEF FAN. AIR HANDLING UNIT CONSISTS OF: SUPPLY FAN, DX COOLING COIL, STEAM HEATING COIL, HOT GAS REHEAT COIL AND MERV 8 & MERV 13 FILTERS. SUPPLEMENTAL SUB-SYSTEMS ARE: STEAM HUMIDIFIER AND RELIEF FAN.

AIR HANDLING UNIT CONTROLLER SHALL NOT ALLOW SIMULTANEOUS HEATING AND COOLING EXCEPT FOR HUMIDITY CONTROL.

PROVIDE ROOM THERMOSTAT, SENSORS AND OTHER CONTROL COMPONENTS IN ACCORDANCE WITH THE DDC CONTROL POINTS LIST.

SYSTEM SHOULD BE EXTENSION OF THE EXISTING TRIDIUM BAS CONTROL UTILIZING BACNET CONTROL DEVICES WITH FULL INTEGRATION WITH EXISTING OPERATOR INTERFACE. PROVIDE NEW GRAPHICS, TREND LOGS, ETC.

AIR HANDLING UNIT OPERATION

START/STOP SUPPLY FAN. SUPPLY FAN SHOULD RUN CONTINUOUSLY.

RELIEF FAN OPERATION

RUN RELIEF FAN SHALL BE INTERLOCKED WITH AIR HANDLING UNIT AND SHALL RUN CONTINUOUSLY. RELIEF FAN SHALL BE "OFF" WHEN AIR HANDLING UNIT IS SHUT DOWN OR WHEN START SWITCH IS MANUALLY TURNED OFF FOR MAINTENANCE.

MECHANICAL HEATING (OA TEMPERATURE BELOW 65°F)

ON DEMAND FOR HEATING, MODULATE STEAM HEATING COIL CONTROL VALVE (V-1) TO MAINTAIN DISCHARGE AIR TEMPERATURE (T2) (RESET BASED ON SPACE TEMPERATURE). DX COOLING SYSTEM SHALL BE SHUT DOWN. WHEN SPACE TEMPERATURE IS SATISFIED FOR HEATING AND IN COOLING DEMAND, RESET DISCHARGE AIR TEMPERATURE SET POINT TO MINIMUM (55°F ADJUSTABLE). PROVIDE HIGH/LOW SPACE AND DISCHARGE AIR TEMPERATURE ALARMS.

MECHANICAL COOLING (OA TEMPERATURE ABOVE 70°F)

ON DEMAND FOR COOLING, DX COOLING SHALL BE ENERGIZED AND CONDENSING UNIT COMPRESSOR SHALL MODULATE TO MAINTAIN DISCHARGE AIR TEMPERATURE (T2) (55°F ADJUSTABLE). STEAM CONTROL VALVE (V-1) AND HUMIDIFIER CONTROL VALVE (V-2) SHALL BE CLOSED. WHEN SPACE TEMPERATURE IS SATISFIED FOR COOLING, RESET DISCHARGE ARE TEMPERATURE TO MAXIMUM (72°F ADJUSTABLE). PROVIDE HIGH/LOW SPACE AND DISCHARGE AIR TEMPERATURE ALARMS.

HUMIDIFICATION (SPACE HUMIDITY BELOW SET POINT)

ACTIVATE HUMIDIFICATION ON DEMAND FROM SPACE HUMIDITY SENSORS (SET AT 35% ADJUSTABLE) MINIMUM. MODULATE STEAM CONTROL VALVE (V-2) TO MAINTAIN DISCHARGE SPACE HUMIDITY PROPORTIONAL TO DEVIATION OF SPACE HUMIDITY FROM SET-POINT. DISABLE HUMIDIFICATION DURING MECHANICAL COOLING MODE. PROVIDE DISCHARGE HUMIDITY CONTROLLER TO MAINTAIN MAXIMUM DISCHARGE AIR HUMIDITY SET AT (80% ADJUSTABLE). CLOSE STEAM CONTROL VALVE IF SUPPLY FAN IS NOT RUNNING. PROVIDE HIGH/LOW SPACE AND DISCHARGE AIR HUMIDITY ALARMS. HUMIDITY CONTROL VALVE SHALL BE INTERLOCKED WITH TEMPERATURE SWITCH ON CONDENSATE RETURN TO KEEP HUMIDIFIER "OFF" UNTIL CONDENSATE APPROACHES STEAM TEMPERATURE.

DEHUMIDIFICATION (SPACE HUMIDITY ABOVE SET POINT)

ON DEMAND FOR DEHUMIDIFICATION (BASED ON SPACE HUMIDITY SENSOR) INTERNAL CONTROL SHALL ACTIVATE COOLING AND HOT GAS REHEAT TO MAINTAIN SPACE TEMPERATURE AND HUMIDITY.

SAFETY (SYSTEMS SHUT-DOWNS)

SHUT DOWN AIR HANDLER ON THE FAILURE OF THE MAJOR COMPONENTS SUCH AS SUPPLY OR RELIEF FAN AND FREEZE-STAT.

DURING SHUT-DOWN, SHUT-DOWN SUPPLY AND RELIEF FANS, CLOSE OUTSIDE AIR DAMPERS, CLOSE RELIEF AIR DAMPERS AND CLOSE ALL CONTROL VALVES.

IF SPACE TEMPERATURES ARE OUTSIDE HIGH/LOW LIMIT SET POINTS, SYSTEM SHALL SHUTDOWN.

1 CONTROLS DIAGRAM

N.T.S.

GENERAL NOTES

1. MECHANICAL CONTRACTOR SHALL COORDINATE WORK WITH EXISTING CONDITIONS AND WITH THE WORK OF OTHER TRADES.
2. THESE DRAWINGS ARE A DIAGRAMMATIC REPRESENTATION OF WORK TO BE ACCOMPLISHED AND AS SUCH DO NOT SHOW ALL REQUIRED OFFSETS OF PIPING. MECHANICAL CONTRACTOR SHALL INSTALL MATERIAL AND EQUIPMENT AS TO CONFORM TO THE STRUCTURE, EQUIPMENT CONNECTIONS AND MAINTAIN HEADROOM AND PASSAGEWAY.
3. ALL CUTTING AND PATCHING OF EXISTING STRUCTURE TO ACCOMMODATE NEW HVAC IS BY MECHANICAL CONTRACTOR.
4. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REINSTALLATION OF EXISTING CEILING (UNLESS WORK PERFORMED BY GENERAL CONTRACTOR AND IDENTIFIED ON ARCHITECTURAL DRAWINGS.) REPLACE ALL DAMAGED CEILING WITH NEW.
5. KEYNOTES PERTAIN ONLY TO THE DRAWING THEY ARE LOCATED ON.
6. DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.
7. MECHANICAL CONTRACTOR SHALL CLEAN ALL NEW DUCTWORK, COILS AND DIFFUSERS THAT ARE WITHIN PROJECT LIMITATIONS PRIOR TO COMPLETION.
8. ALL CONTROL WIRING SHALL BE RUN IN CONDUIT.
9. MAINTAIN 10' MINIMUM DISTANCE FROM OUTSIDE AIR INTAKE TO ANY EXHAUST OR TOILET VENTS.
10. ALL EQUIPMENT, DUCTWORK AND PIPING FITTINGS SHALL BE INSTALLED IN A MANNER WHICH VA STAFF SHALL HAVE ACCESS.
11. CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE THE CONSTRUCTION BOUNDARY LIMITS UNLESS NOTED ON PLANS. COORDINATE SCHEDULE OF SUCH WORK WITH VA.
12. THE EXISTING OR DEMOLITION PLANS ARE BASED OFF OF EXISTING AS-BUILTS, CONSTRUCTION DRAWINGS & CASUAL SITE WALK-THROUGHS. THE CONTRACTOR SHALL VISIT THE SITE, REVIEW OTHER DISCIPLINE DEMOLITION DRAWINGS & PROVIDE DISCONNECTION OR RELOCATION OF ALL NECESSARY EQUIPMENT FOR THE COMPLETION OF THIS PROJECT.
13. CONTRACTOR SHALL PROVIDE OFFSETS OR TRANSITIONS OF ALL DUCTWORK AND PIPING AS NECESSARY.
14. EQUIPMENT SELECTIONS ARE BASED OFF NOTED MANUFACTURERS AND MODELS LISTED ON SCHEDULES. ANY ALTERNATE EQUIPMENT SUBMITTED SHALL MEET OR EXCEED ALL PERFORMANCE CAPACITIES AND FALL WITHIN PHYSICAL DIMENSIONS AND WEIGHTS OF SCHEDULED EQUIPMENT. ALTERNATE SUBMITTALS SHALL MEET ALL SYSTEM REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MODIFICATIONS (STRUCTURAL, ELECTRICAL, MECHANICAL, ETC.) NECESSARY TO ACCOMMODATE ALTERNATE EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.

HVAC LEGEND

- NEW HVAC EQUIPMENT
- EXISTING DUCTWORK
- NEW DUCTWORK
- EXISTING MECHANICAL COMPONENT
- DEMOLISHED MECHANICAL COMPONENT
- SUPPLY AIR DUCT UP
- SUPPLY AIR DUCT DOWN
- RETURN AIR DUCT UP
- RETURN AIR DUCT DOWN
- EXHAUST AIR DUCT UP
- EXHAUST AIR DUCT DOWN
- ELBOW WITH TURNING VANES
- FLEX DUCT
- M — MOTORIZED DAMPER
- BACK DRAFT DAMPER
- BALANCING DAMPER
- AIR FLOW INDICATOR
- UC — DOOR UNDER CUT
- S-* — NEW SUPPLY DIFFUSER
- R-*/E-* — NEW RETURN/EXHAUST GRILLE
- R-*/E-* — NEW RETURN/EXHAUST GRILLE WITH DAMPER
- H — HUMIDITY SENSOR
- T — THERMOSTAT
- S — DUCT SMOKE DETECTOR
- CONTROL WIRE
- 1 — KEY NOTE
- 1 — DEMO NOTE

PIPING LEGEND

- NEW SUPPLY PIPING (ALL SYSTEM TYPES)
- EXISTING SUPPLY PIPING (ALL SYSTEM TYPES)
- NEW RETURN PIPNG PIPING (ALL SYSTEM TYPES)
- EXISTING RETURN PIPNG PIPING (ALL SYSTEM TYPES)
- BALL VALVE
- CHECK VALVE
- CIRCUIT SETTER
- 2-WAY ELECTRONIC CONTROL VALVE
- PIPE BREAK
- PIPE CAPPED END
- PIPE ELBOW/TEE DOWN
- PIPE ELBOW/TEE UP
- POINT OF CONNECTION
- REDUCER
- STRAINER
- UNION

ABBREVIATIONS

- AD — ACCESS DOOR
- AFF — ABOVE FINISHED FLOOR
- AP — ACCESS PANEL
- BOD — BOTTOM OF DUCT
- BOP — BOTTOM OF PIPE
- CD — CONDENSATE DRAIN
- CFM — CUBIC FEET PER MINUTE
- CP — CONTROL PANEL
- CDR — CONDENSATE DRAIN
- DN — DOWN
- EA — EXHAUST AIR
- MIN — MINIMUM
- MAX — MAXIMUM
- LPS — LOW PRESSURE STEAM
- CR — LOW PRESSURE CONDENSATE RETURN
- OA — OUTSIDE AIR
- RA — RETURN AIR
- SA — SUPPLY AIR
- S/D — START / DISCONNECT

INPUT/OUTPUT SUMMARY TABLE

PROJECT: VA MADISON — *CONSTRUCT PHARMACY CACHE PROJECT* — SYSTEM: RF-147

POINT DESCRIPTION	HW Output Digital: Control Relay	Solinoid	Contractor	Incremental	HW Output Analog: Pneumatic Transducer	Electrical Transducer	4-20 MA Module	Control Relay	Incremental	HW Input Digital: Pressure Switch	Flow Switch	Switch Closure	Auxiliary Contact	KW	Control Relay	Current Sensor	VFD Fault	HW Input Analog: Temperature	Relative Humidity	Pressure Differential	Position	RPM	Flow	Control Relay	Static Pressure	SW Alarms Digital: Equipment Status	Maintenance	Control Relay	SW Alarms Analog: High Limit	Low Limit	Run Time	Control Relay	Energy Management System Functions: Schedule Start/Stop	Optimum Start/Stop	Point History	Day/Night Setback	Economizer	Temperature Control	Hot/Cold Deck Reset	Reheat Coil Reset	Steam Boiler OPtim.	Hot Water Boiler Optim.	HW OA Reset	Chiller Optimization	Chilled Water Reset	Condenser Water Reset	Chiller Demand Limit	VAV Control	Lighting Control	TOTALIZE
RF-147																																																		
CONTROL DAMPER	X																				X											X																		
FAN STATUS	X															X																X																		

3 RF-147 POINTS LIST

N.T.S.

INPUT/OUTPUT SUMMARY TABLE

PROJECT: VA MADISON — *CONSTRUCT PHARMACY CACHE PROJECT* — SYSTEM: AHU-147

POINT DESCRIPTION	HW Output Digital: Control Relay	Solinoid	Contractor	Incremental	HW Output Analog: Pneumatic Transducer	Electrical Transducer	4-20 MA Module	Control Relay	Incremental	HW Input Digital: Pressure Switch	Flow Switch	Switch Closure	Auxiliary Contact	KW	Control Relay	Current Sensor	VFD Fault	HW Input Analog: Temperature	Relative Humidity	Pressure Differential	Position	Flow	Control Relay	Static Pressure	SW Alarms Digital: Equipment Status	Maintenance	Control Relay	SW Alarms Analog: High Limit	Low Limit	Run Time	Control Relay	Energy Management System Functions: Schedule Start/Stop	Optimum Start/Stop	Point History	Day/Night Setback	Economizer	Temperature Control	Hot/Cold Deck Reset	Reheat Coil Reset	Steam Boiler OPtim.	Hot Water Boiler Optim.	HW OA Reset	Chiller Optimization	Chilled Water Reset	Condenser Water Reset	Chiller Demand Limit	VAV Control	Lighting Control	TOTALIZE
AHU-147																																																
SUPPLY FAN (NOTE 1)																X									X		X					X																	
DISCHARGE AIR SENSOR (T1 & T2)																		X										X	X																				
DISCHARGE HUMIDITY SENSOR (H1)																		X										X	X																				
OUTSIDE AIR																		X																															
SPACE TEMPERATURE																		X										X	X																				
SPACE HUMIDITY																			X									X	X																				
MOTORIZED DAMPERS (RF AND OA)	X											X																																					
HEATING VALVE (V-1)						X															X																												
HUMIDIFIER VALVE (V-2)						X															X																												
HUMIDIFIER CONDENSATE RETURN																		X																															
FILTER (NOTE 1)																				X					X			X																					
FREEZE STAT																		X											X																				
HOT GAS REHEAT (NOTE 1)																									X																								
VARIABLE SPEED COMPRESSOR (NOTE 1)																							X																										

NOTE 1: AVAILABLE FROM AHU CONTROL BOARD

2 AHU-147 POINTS LIST

N.T.S.

100% CONSTRUCTION DOCUMENTS

Revisions:	Date

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Drawing Title: MECHANICAL GENERAL NOTES, LEGENDS, CONTROL DIAGRAM AND POINTS

Approved: Project Director

Project Title: Middleton VAH Construct Pharmacy Cache

Location: Madison, WI

Date: May 13, 2013 | Checked: TJK | Drawn: CDW

Project Number: 607-13-101

Building Number: 19

Drawing Number: M001

Office of Construction and Facilities Management

Department of Veterans Affairs

STEAM TRAP

PLAN DESIGNATION	ST-1
MANUFACTURER	B&G
MODEL	B1-3/4"
SIZE	3/4
CAPACITY - LBS/HR	500
PRESSURE DIFFERENTIAL - PSI	1/2
MAX OPERATING TEMPERATURE - F	406
MAX OPERATING PRESSURE - PSIG	175

SELECTION BASED ON B&G INVERTED BUCKET TRAP

DIFFUSERS & GRILLES

PLAN DESIGNATION		S-1	R-1	E-1
MANUFACTURER		TITUS	TITUS	TITUS
MODEL		300FL	350FL	350FL
CONSTRUCTION	TYPE	GRILLE	GRILLE	GRILLE
	MOUNTING	DUCT	DUCT	DUCT
	MATERIAL	ALUMINUM	ALUMINUM	ALUMINUM
CFM		300	1,200	430
GRILLE SIZE		12" x 8"	24" x 12"	12" x 12"
DUCT CONNECTION SIZE		12" x 8"	24" x 12"	12" x 12"
NC		17	28	-
REMARKS		1,2,3,4	1,2,3	1,2,3

1. COORDINATE COLOR WITH ARCHITECT
2. PROVIDE WITH 1" BORDER
3. PROVIDE WITH OPPOSED BLADE DAMPER
4. PROVIDE WITH 22.5 DEGREE DEFLECTION BLADES

HUMIDIFIER

PLAN DESIGNATION		H-1
MANUFACTURER		DRI-STEEM
MODEL		ULTRA-SORB LH
TYPE		STEAM
SERVICE		AHU-147
AIR	FLOW RATE - CFM	1,200
	ENTERING DB TEMP - °F	55.0
	ENTERING RH%	20.0
	LEAVING DB TEMP - °F	55.0
ROOM CONDITIONS	ROOM TEMP - °F	72.0
	LEAVING RH %	35.0
STEAM	FLOW RATE - LBS/HR	39.0
	STEAM PRESSURE - PSI	5.0
NUMBER SIZE - IN		3
STRAINER SIZE - IN		3/4
INLET - NPT		1/2
CONTROL		ELECTRONIC
ABSORTION DISTANCE (VAPOR TRAIL)		14"
FACE DIMENSIONS (WxH) IN		24x18

1. SELECTIONS BASED ON DRI-STEEM HUMIDIFIER
2. PROVIDE TEMPERATURE SWITCH
3. STEAM PRESSURE AT VALVE IS 4.0 PSI

RELIEF FAN

PLAN DESIGNATION		RF-147
MANUFACTURER		GREENHECK
MODEL		G-095-VG
FAN TYPE		ROOF MOUNTED
SERVES		PHARMACY CACHE
LOCATION		ROOF
FAN	CFM	430
	ESP (IN.W.C.)	0.8
	DRIVE	DIRECT
	MAX RPM	1,725
	NOM. FAN MOTOR (HP)	1/6
	VOLTAGE/PHASE	115 / 1
CABINET	SIZE (DIAxH) IN	21.8x14.6
	WEIGHT (LBS)	60
SOUND POWER MAX VALUES (INTAKE)	1ST OCTAVE	82
	2ND OCTAVE	80
	3RD OCATVE	73
	4TH OCTAVE	67
	5TH OCTAVE	64
	6TH OCTAVE	59
	7TH OCTAVE	50
	8TH OCTAVE	47
	SONES	10.7
REMARKS		1 THRU 4

1. SCHEDULED UNITS BASED ON SELECTIONS OF GREENHECK FANS
2. PROVIDE DISCONNECT
3. PROVIDE WITH ROOF CURB
4. PROVIDE WITH VARIGREEN SPEED CONTROLLER

AIR HANDLING UNIT

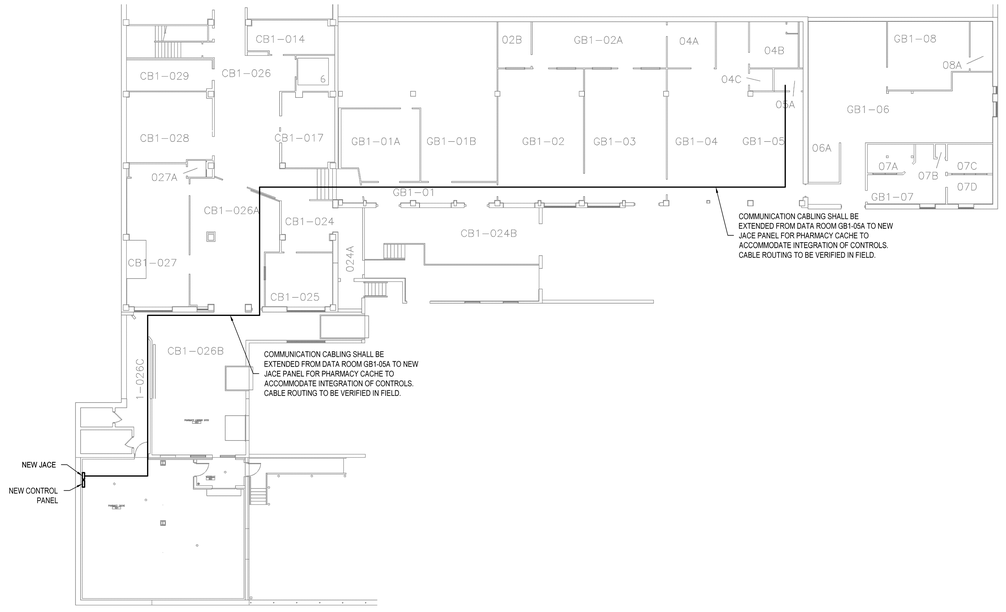
PLAN DESIGNATION		AHU-147
MANUFACTURER		AAON
MODEL		RQ SERIES
SIZE		4
LOCATION		PHARMACY CACHE
MOUNTING		ROOF
HEATING	SUPPLY - CFM	1,200
	OUTSIDE AIR - CFM	430
	CAPACITY - MBH	66.7
	ENTERING AIR TEMP - °F	41.3
	LEAVING AIR TEMP - °F	90.1
STEAM	PRESSURE - LBS	5
	CONDENSATE - LBS/HR	72.4
COOLING (DX COIL)	CFM	1,200
	TOTAL CAPACITY - MBH	50.3
	SENSIBLE CAPACITY - MBH	37.3
	ENTERING AIR TEMP - °F DB	82.2
	ENTERING AIR TEMP - °F WB	67.1
	LEAVING AIR TEMP - °F DB	52.9
	LEAVING AIR TEMP - °F WB	52.7
	SEER	15.7
FAN	ESP - IN	1.05
	RPM	1,750
	MOTOR HP	1
	FLA	26
	VOLTS/PHASE	208/3
CABINET SIZE (H x W x D)		45x44x82.5
WEIGHT - LBS		850
REMARKS		1,2,3,4

1. PROVIDE WITH HOT GAS REHEAT COIL
2. PROVIDE WITH DX COOLING COIL
3. PROVIDE WITH VARIABLE CAPACITY COMPRESSOR
4. PROVIDE WITH 2" & 4" PLEATED FILTERS
5. PROVIDE WITH 48" CURB WITH (2) ACCESS DOORS
6. SEE 23 81 00 FOR FURTHER FEATURES

VENTILATION SCHEDULE

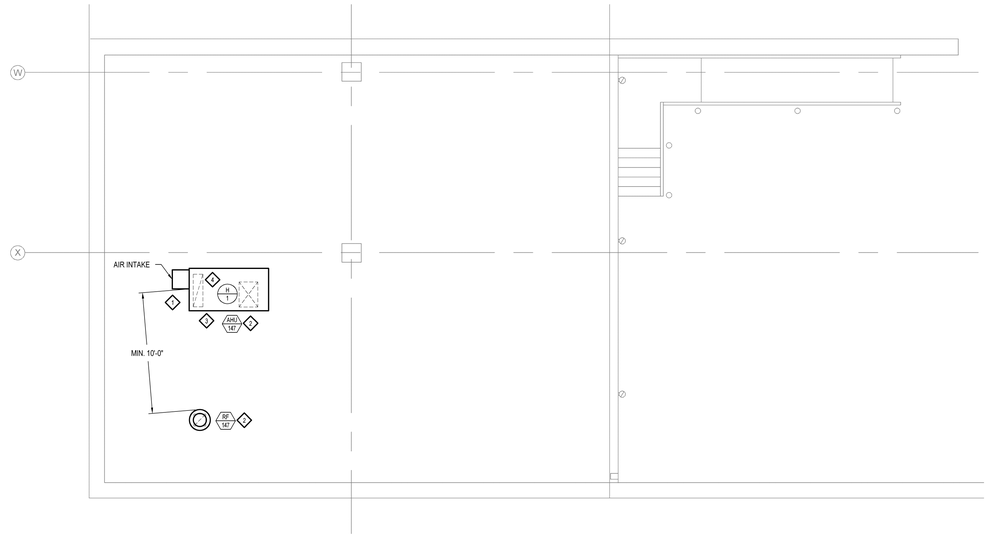
BLDG	LEVEL	ROOM NAME	ROOM USE	AREA SQ FT	ACH REQ'D SUPPLY	ACH REQ'D OUTSIDE AIR	CFM REQ'D SUPPLY	CFM REQ'D OUTSIDE AIR	CFM REQ'D CALCS	ROOM AIR BALANCE	CFM PROVIDED SUPPLY	CFM PROVIDED OUTSIDE AIR
19	GROUND	PHARMACY CACHE	WAREHOUSE	1603	4	2	855	427	770	NEUTRAL	1,200	430

NR=NOT REQUIRED
NA=NOT APPLICABLE



F2 PHARMACY CACHE COMMUNICATION WIRING PLAN
1/16" = 1'-0"

PLAN NORTH



F1 PHARMACY CACHE MECHANICAL ROOF PLAN
3/16" = 1'-0"

PLAN NORTH

KEY NOTES

1. OUTSIDE AIR INTAKE HOOD FOR ROOFTOP UNIT SHALL BE MIN. 10 FT AWAY FROM EXHAUST FAN.
2. FIELD VERIFY EXACT LOCATION OF ALL NEW EQUIPMENT ON ROOF WITH STRUCTURAL BEAMS.
3. INSTALL COOLING COIL CONDENSATE WASTE FROM ROOFTOP UNIT PER MANUFACTURER'S RECOMMENDATION. DISCHARGE CONDENSATE WASTE ONTO ROOF AND PROVIDE SPLASH BLOCK.
4. REFER TO DETAIL 1 ON SHEET M-200 FOR STEAM COIL AND HUMIDIFIER CONNECTIONS.

100% CONSTRUCTION DOCUMENTS

Revisions:	Date

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Drawing Title: MECHANICAL SCHEDULES, ROOF PLAN AND COMMUNICATIONS WIRING PLAN

Approved: Project Director

Project Title: Middleton VAH Construct Pharmacy Cache

Location: Madison, WI

Date: May 13, 2013 | Checked: TJK | Drawn: CDW

Project Number: 607-13-101

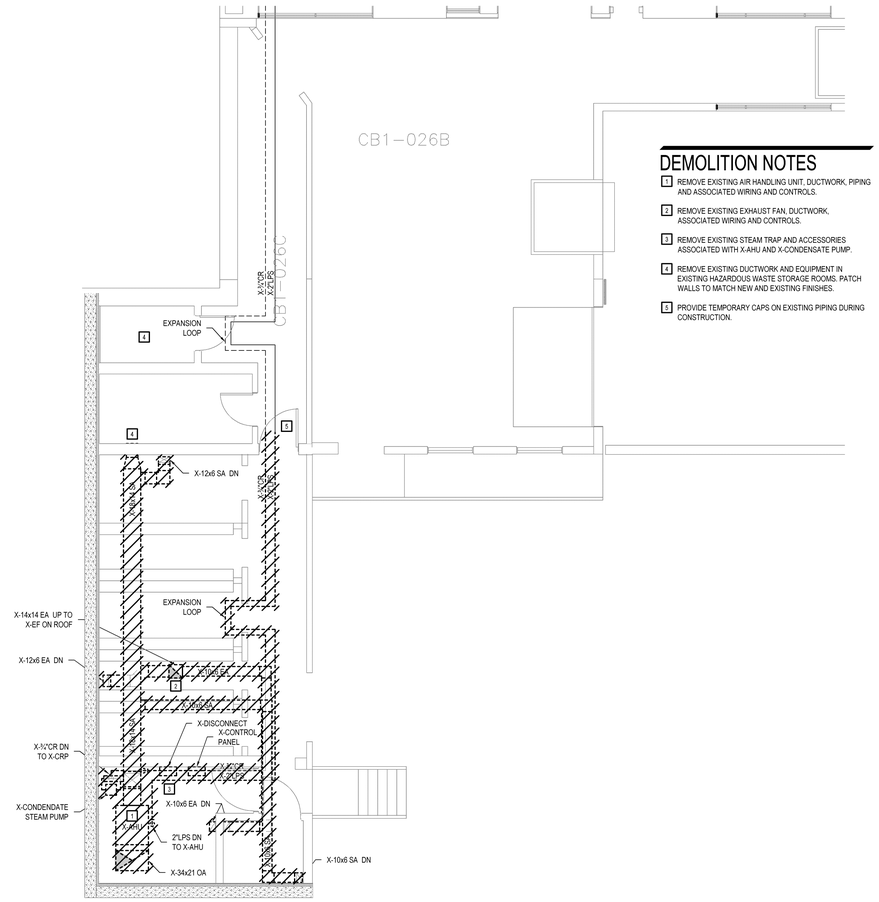
Building Number: 19

Drawing Number: M002

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

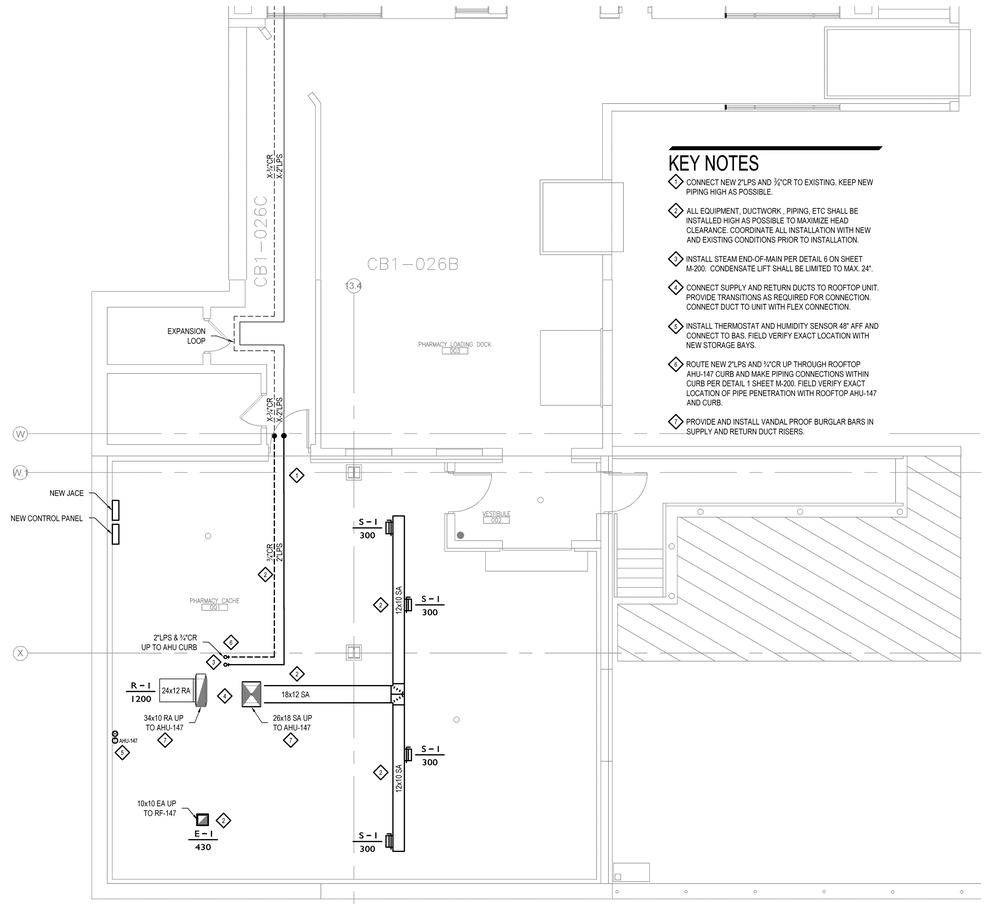


DEMOLITION NOTES

1. REMOVE EXISTING AIR HANDLING UNIT, DUCTWORK, PIPING AND ASSOCIATED WIRING AND CONTROLS.
2. REMOVE EXISTING EXHAUST FAN, DUCTWORK, ASSOCIATED WIRING AND CONTROLS.
3. REMOVE EXISTING STEAM TRAP AND ACCESSORIES ASSOCIATED WITH X-AHU AND X-CONDENSATE PUMP.
4. REMOVE EXISTING DUCTWORK AND EQUIPMENT IN EXISTING HAZARDOUS WASTE STORAGE ROOMS. PATCH WALLS TO MATCH NEW AND EXISTING FINISHES.
5. PROVIDE TEMPORARY CAPS ON EXISTING PIPING DURING CONSTRUCTION.

F2 PHARMACY CACHE MECHANICAL DEMO PLAN
3/16" = 1'–0"

PLAN NORTH



KEY NOTES

1. CONNECT NEW 2"LPS AND ½"CR TO EXISTING. KEEP NEW PIPING HIGH AS POSSIBLE.
2. ALL EQUIPMENT, DUCTWORK , PIPING, ETC SHALL BE INSTALLED HIGH AS POSSIBLE TO MAXIMIZE HEAD CLEARANCE. COORDINATE ALL INSTALLATION WITH NEW AND EXISTING CONDITIONS PRIOR TO INSTALLATION.
3. INSTALL STEAM END-OF-MAIN PER DETAIL 6 ON SHEET M-200. CONDENSATE LIFT SHALL BE LIMITED TO MAX. 24".
4. CONNECT SUPPLY AND RETURN DUCTS TO ROOFTOP UNIT. PROVIDE TRANSITIONS AS REQUIRED FOR CONNECTION. CONNECT DUCT TO UNIT WITH FLEX CONNECTION.
5. INSTALL THERMOSTAT AND HUMIDITY SENSOR 48" AFF AND CONNECT TO BAS. FIELD VERIFY EXACT LOCATION WITH NEW STORAGE BAYS.
6. ROUTE NEW 2"LPS AND ½"CR UP THROUGH ROOFTOP AHU-147 CURB AND MAKE PIPING CONNECTIONS WITHIN CURB PER DETAIL 1 SHEET M-200. FIELD VERIFY EXACT LOCATION OF PIPE PENETRATION WITH ROOFTOP AHU-147 AND CURB.
7. PROVIDE AND INSTALL VANDAL PROOF BURGLAR BARS IN SUPPLY AND RETURN DUCT RISERS.

F1 PHARMACY CACHE MECHANICAL PLAN
3/16" = 1'–0"

PLAN NORTH

100% CONSTRUCTION DOCUMENTS

Revisions:	Date

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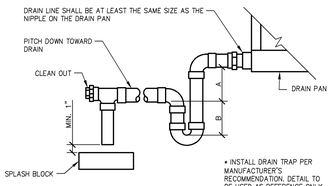
Drawing Title	MECHANICAL PLANS
Approved: Project Director	
Project Title	Middleton VAH Construct Pharmacy Cache
Location	Madison, WI
Date	May 13, 2013
Checked	TJK
Drawn	CDW
Project Number	607-13-101
Building Number	19
Drawing Number	M100

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

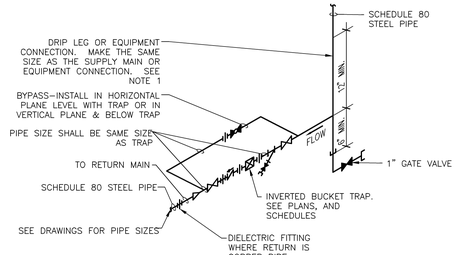


NOTE:

UNIT TYPE	A	B
DRAW THRU	2" PLUS X	X
BLOW THRU	1" MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

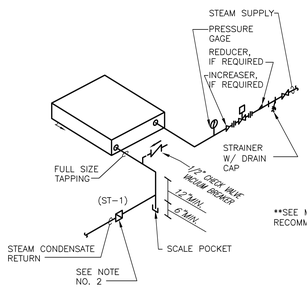
10 AIR HANDLING UNIT DRAIN TRAP DETAIL
N.T.S.



NOTE:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12" MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.
2. PROVIDE BYPASS PIPING.

7 INVERTED BUCKET STEAM TRAP ASSEMBLY DETAIL
N.T.S.

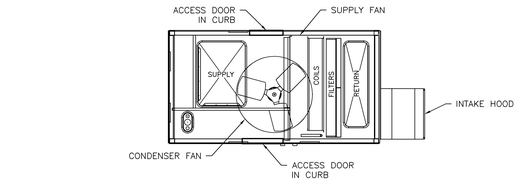


NOTE:

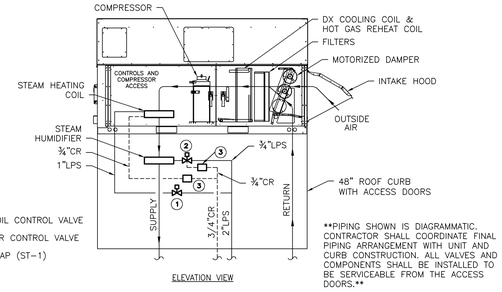
1. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.
2. TRAP COIL WITH INVERTED BUCKET STEAM TRAP. ALSO PROVIDE SEPARATE VACUUM BREAKER FOR EACH COIL.

SEE MANUFACTURER'S RECOMMENDATION FOR FINAL PIPING.

4 STEAM COIL DETAIL
N.T.S.



TOP VIEW



ITEM KEY

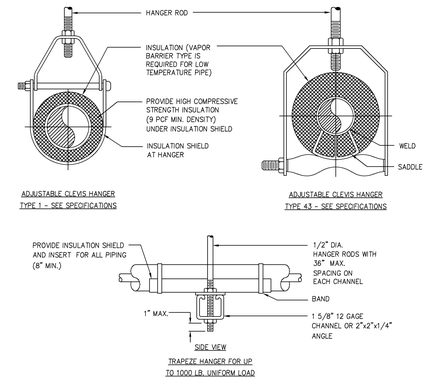
1. STEAM COIL CONTROL VALVE
2. HUMIDIFIER CONTROL VALVE
3. STEAM TRAP (ST–1)

ELEVATION VIEW

PIPING SHOWN IS DIAGRAMMATIC. CONTRACTOR SHALL COORDINATE FINAL PIPING ARRANGEMENT WITH UNIT AND CURB CONSTRUCTION. ALL VALVES AND COMPONENTS SHALL BE INSTALLED TO BE SERVICEABLE FROM THE ACCESS DOORS.

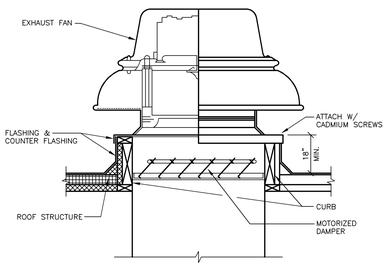
SEE SPEC SECTION 23 81 00 FOR FURTHER DETAILS AND FEATURES

1 PACKAGED ROOFTOP AHU DETAIL
N.T.S.

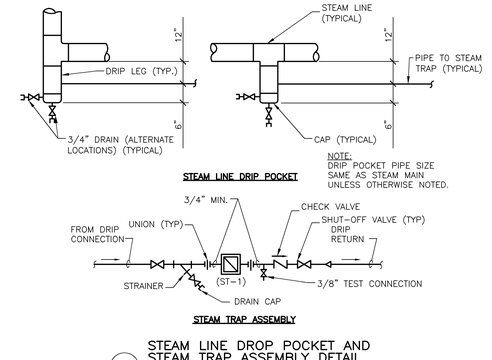


MAXIMUM PIPE/TUBING SUPPORT SPACING											
NOM. SIZE	IN. (MM)	THRU 3/4 THRU (20)	1 (25)	1 1/4 (32)	1 1/2 (40)	2 (50)	2 1/2 (65)	3 (75)	4 (100)	5 (125)	6 (150)	8 (200)
PIPE	FT. (M)	7 (2.1)	7 (2.1)	7 (2.1)	9 (2.7)	10 (3.0)	11 (3.4)	12 (3.7)	14 (4.1)	16 (4.9)	17 (5.2)	19 (5.8)
TUBING	FT. (M)	5 FT 5 FT	6 (1.8)	7 (2.1)	8 (2.4)	8 (2.4)	9 (2.7)	10 (3.0)	12 (3.7)	13 (4.0)	14 (4.1)	16 (4.9)
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.												

11 TYPICAL PIPE HANGER DETAIL
N.T.S.



8 ROOF MOUNTED EXHAUST FAN DETAIL
N.T.S.



STEAM LINE DRIP POCKET

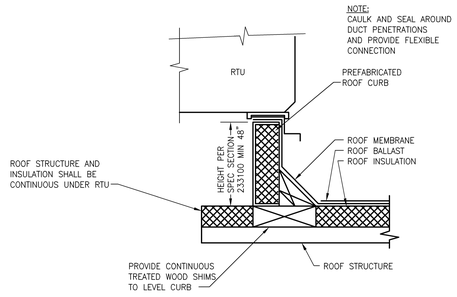
NOTE:
DRIP POCKET PIPE SIZE SAME AS STEAM MAIN UNLESS OTHERWISE NOTED.

STEAM TRAP ASSEMBLY

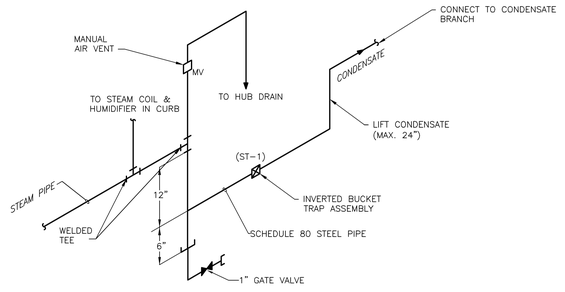
5 STEAM LINE DROP POCKET AND STEAM TRAP ASSEMBLY DETAIL
N.T.S.

NOTES:
1. TRANSITION WELDED STAINLESS STEEL UPSTREAM OF HUMIDIFIER AND APPROXIMATELY 6FT DOWNSTREAM OF HUMIDIFIER.
2. INTEGRAL STAINLESS STEEL DRAIN PAN SLOPE FROM ALL DIRECTIONS TO DRAIN CONNECTION. SLOPE .125" PER 1'–0".
3. PROVIDE MIN. 15" WIDE ACCESS DOOR, DIRECTLY UPSTREAM AND DOWNSTREAM OF HUMIDIFIER.

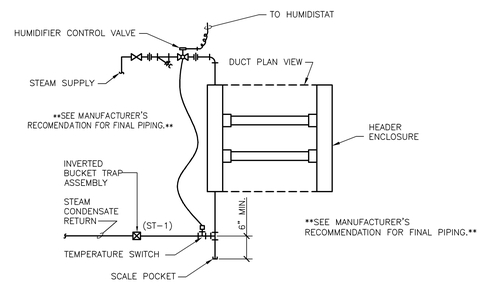
2 DUCT MOUNTED HUMIDIFIER DETAIL
N.T.S.



9 OUTDOOR AHU CURB DETAIL
N.T.S.



6 END OF LINE STEAM LINE DRIP TRAP
N.T.S.



3 STEAM HUMIDIFIER DETAIL
N.T.S.

100% CONSTRUCTION DOCUMENTS

Revisions:	Date

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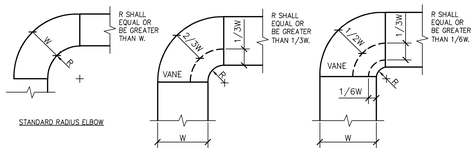
Drawing Title	MECHANICAL DETAILS
Approved Project Director	
Project Title	Middleton VAH Construct Pharmacy Cache
Location	Madison, WI
Date	May 13, 2013
Checked	TJK
Drawn	CDW
Project Number	607-13-101
Building Number	19
Drawing Number	M200

Office of Construction and Facilities Management

Department of Veterans Affairs

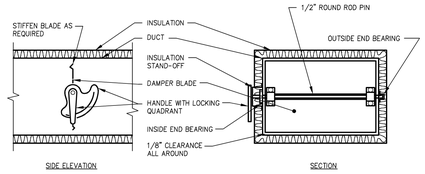
VA FORM 08-6231



NOTE:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS SHOWN ON FLOOR PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

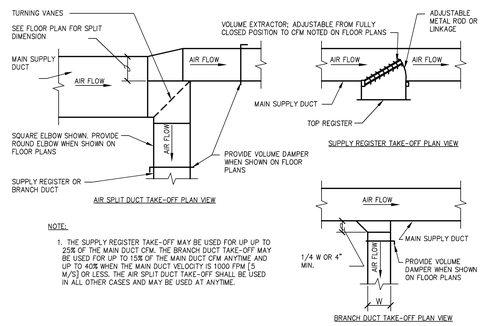
4 DUCTWORK RADIUS ELBOWS
N.T.S.



NOTE:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

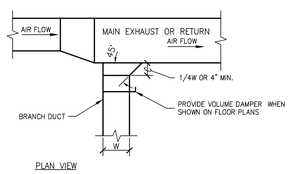
5 VOLUME DAMPER DETAIL
N.T.S.



NOTE:

1. THE SUPPLY REGISTER TAKE-OFF MAY BE USED FOR UP UP TO 25% OF THE MAIN DUCT CFM. THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM ANYTIME AND UP TO 40% WHEN THE MAIN DUCT VELOCITY IS 1000 FPM [5 M/S] OR LESS. THE AIR SPLIT DUCT TAKE-OFF SHALL BE USED IN ALL OTHER CASES AND MAY BE USED AT ANYTIME.

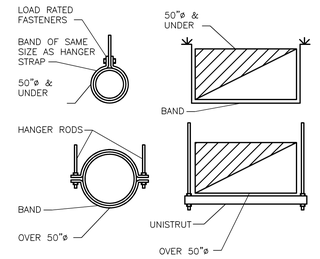
6 SUPPLY DUCTWORK TAKE–OFFS
N.T.S.



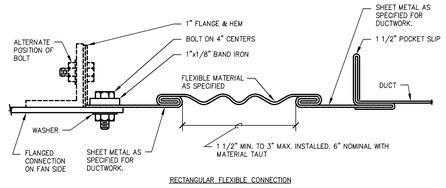
7 EXHAUST OR RETURN BRANCH DUCTWORK
N.T.S.

NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

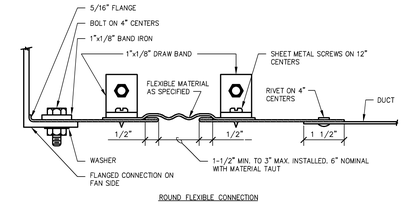
HANGER STRAPS OR RODS			
MAX. DUCT DIM IN. [mm]	QUANTITY/SIZE IN. [mm]	MAX. LOAD LBS. [kg]	MAX. SPACING IN. [mm]
26 [650]	ONE 1 [25] x 22 GA STRAP	260 [119]	144 [3600]
36 [900]	ONE 1 [25] x 18 GA STRAP	420 [190]	144 [3600]
50 [1250]	ONE 1 [25] x 16 GA STRAP	700 [317]	144 [3600]
60 [1500]	TWO 3/8 [10]ø. RODS	1320 [598]	144 [3600]
84 [2100]	TWO 1/2 [13]ø RODS	2500 [1133]	144 [3600]



1 DUCT HANGERS
N.T.S.

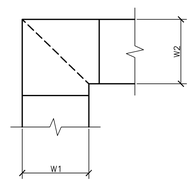


RECTANGULAR FLEXIBLE CONNECTION



ROUND FLEXIBLE CONNECTION

2 RECTANGULAR AND ROUND FLEXIBLE CONNECTION DETAILS
N.T.S.



NOTE:

1. ALL VANED ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE VANES SHALL HAVE A 2" RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" VANES SHALL BE DOUBLE VANE TYPE.
5. PROVIDE ACCESS PANELS AT ELBOW TO FACILITATE CLEANING.

3 DUCTWORK SQUARE VANED ELBOWS
N.T.S.

100% CONSTRUCTION DOCUMENTS

Revisions:	Date

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Drawing Title: MECHANICAL DETAILS

Approved Project Director:

Project Title: Middleton VAH
Construct Pharmacy Cache

Location: Madison, WI

Date: May 13, 2013 | Checked: TJK | Drawn: CDW

Project Number: 607-13-101

Building Number: 19

Drawing Number: M201

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

ELECTRICAL LEGEND

$	SWITCH		NON-FUSED DISCONNECT	ES	SECURITY ELECTRIC STRIKE
OS	WALL MOUNT OCCUPANCY SENSOR		FUSED DISCONNECT	ML	SECURITY MAG LOCK
	STRIP/INDUSTRIAL FIXTURE		MAGNETIC STARTER	DC	SECURITY DOOR CONTACTOR
	WALL MOUNTED FIXTURE		COMBINATION STARTER		SECURITY CAMERA
	WALL MOUNTED FIXTURE - EMERGENCY		MOTOR	PTZ	SECURITY PAN, TILT, ZOOM CAMERA
	CEILING OR WALL MOUNTED EXIT, SINGLE FACE	F	FIRE ALARM PULL STATION	CR MT	CARD ACCESS READER; LETTER INDICATES AS FOLLOWS: M=MOUNT C-CEILING D-DESK F-FLUSH H-HIDDEN M-MULLION P-PEDESTAL R-RACK S-SURFACE W-WALL T=TECHNOLOGY/TYPE B-BARCODE F-ELEV. FLOOR CALL H-ELEV. HALL CALL M-MAG STRIP P-PROXIMITY S-SMART CARD T-TOKEN
	DUPLEX RECEPTACLE MOUNTED AT HEIGHT INDICATED	S	FIRE ALARM SPEAKER STROBE		
	SPECIAL PURPOSE OUTLET	H	FIRE ALARM HEAT DETECTOR		
J	JUNCTION BOX	S	FIRE ALARM SMOKE DETECTOR		
	TELEPHONE OUTLET	S	FIRE ALARM DUCT DETECTOR	MT	MOTION DETECTOR; LETTER INDICATES AS FOLLOWS: M=MOUNT C-CEILING D-DESK F-FLUSH H-HIDDEN M-MULLION P-PEDESTAL R-RACK S-SURFACE W-WALL T=TECHNOLOGY/TYPE D-DUAL TECHNOLOGY IR-INFRARED M-MICROWAVE U-ULTRASONIC X-REQUEST-FOR-EXIT
	DATA OUTLET	CM	FIRE ALARM CONTROL MODULE		
	TELEPHONE/DATA OUTLET	MM	FIRE ALARM MONITOR MODULE		
	SURFACE MOUNT PANEL	FS	FIRE ALARM FLOW SWITCH	MT	PUSH BUTTON; LETTER INDICATES AS FOLLOWS: M=MOUNT C-CEILING D-DESK F-FLUSH H-HIDDEN M-MULLION P-PEDESTAL R-RACK S-SURFACE W-WALL T=TECHNOLOGY/TYPE B-BELL PUSH D-DURESS P-PANIC R-DOOR RELEASE X-REQUEST-FOR-EXIT
	RECESSED PANEL	TS	FIRE ALARM TAMPER SWITCH		
		S	WALL MOUNTED SPEAKER		

ELECTRICAL ABBREVIATIONS

1P	SINGLE POLE
1PH	SINGLE PHASE
2P	TWO POLE
2W	TWO WIRE
3P	THREE POLE
3PH	THREE PHASE
3W	THREE WIRE
4W	FOUR WIRE
A	AMPERE
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
AUTO	AUTOMATIC
BLDG	BUILDING
BKR	BREAKER
C	CONDUIT
CAT	CATALOG
CB	CIRCUIT BREAKER
CD	CANDELA
CKT	CIRCUIT
CLG	CEILING
CP	CONTROL PANEL
CS	COMBINATION STARTER
CU	COPPER
DEMO	DEMOLITION
DISC	DISCONNECT
DIST	DISTRIBUTION
DN	DOWN
EBU	EMERGENCY BATTERY UNIT
EC	ELECTRICAL CONTRACTOR
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ERL	EXISTING TO BE RELOCATED
ES	ELECTRIC STRIKE
ETR	EXISTING TO REMAIN
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPERE
FSS	FUSED SAFETY SWITCH
GC	GENERAL CONTRACTOR
GFI / GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HP	HORSE POWER
IMC	INTERMEDIATE METALLIC CONDUIT
IU	IN UNIT
K	KEY OPERATED
KW	KILOWATT
LED	LIGHT EMITTING DIODE
LF	LINEAR FOOT (FEET)
LTG	LIGHTING
MAG	MAGNETIC STARTER
MAN	MANUAL STARTER
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MLO	MAIN LUG ONLY
MTD	MOUNTED
MTG	MOUNTING
NAC	NOTIFICATION APPLIANCE CIRCUIT
NEC	NATIONAL ELECTRICAL CODE
NFSS	NON-FUSED SAFETY SWITCH
NU	NEAR UNIT
OS	OCCUPANCY SENSOR
OU	ON UNIT
P	POLE
PC	PLUMBING CONTRACTOR
PH	PHASE
PNL	PANEL
PVC	POLYVINYL CHLORIDE (PLASTIC)
PW	PRE-WIRED
PWR	POWER
RECPT	RECEPTACLE
RM	ROOM
REQ'D	REQUIRED
SD	SMOKE DETECTOR OR SMOKE DAMPER
SF	SQUARE FOOT (FEET)
SW	SWITCH
TYP	TYPICAL
V	VOLT
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WATT OR WIRE
WAP	WIRELESS ACCESS POINT
WP	WEATHERPROOF
X-	EXISTING
XFMR	TRANSFORMER

ELECTRICAL NOTES

1. ALL WORK SHALL COMPLY WITH APPLICABLE NATIONAL, STATE, LOCAL CODES, FEDERAL AND STATE REGULATIONS, AND ALL REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION.
2. THE CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE FULL EXTENT OF WORK, AND PROJECT CONDITIONS, AND SHALL BE FAMILIAR WITH THE LOCAL CONDITIONS AND CODES RELATING TO THE WORK. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF THE OBLIGATIONS OF THE CONTRACT.
3. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER IN WRITING OF ANY EQUIPMENT, MATERIALS, INSTALLATIONS, ETC., THAT ARE DEFICIENT OR IN VIOLATION OF LOCAL CODES AND REGULATIONS.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIAL, LABOR, EQUIPMENT, DEVICES, FIXTURES, SERVICE REQUIREMENTS, ETC., NECESSARY FOR A COMPLETE AND FULLY OPERATIONAL ELECTRICAL SYSTEM/INSTALLATION.
5. THE CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THESE DRAWINGS. WHERE MORE STRINGENT REQUIREMENTS ARE SET FORTH BY THE ARCHITECTURAL DRAWINGS OR LOCAL CODES AND REGULATIONS, THE GREATER REQUIREMENTS SHALL GOVERN. ANY DEVIATIONS FROM THESE DRAWINGS SHALL BE RECORDED AND PROVIDED IN WRITING TO THE ARCHITECT AND ENGINEER.
6. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND THE CONTRACTOR SHALL INSTALL EQUIPMENT TO MEET THE FIELD CONDITIONS WITH COORDINATION FROM APPROVED SHOP DRAWINGS.
7. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE RESPECTIVE TRADES AND VERIFY LOCATIONS AND REQUIREMENTS FROM THE ARCHITECTURAL DRAWINGS, FIELD MEASUREMENTS AND SUPPLIER SHOP DRAWINGS.
8. THE CONTRACTOR SHALL CHECK ALL DRAWINGS AND SPECIFICATIONS OF OTHER TRADES AND INCLUDE IN THEIR BID ANY ADDITIONAL WORK REQUIRED BY THIS TRADE.
9. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHT SWITCHES, POWER, AND COMMUNICATIONS OUTLETS. ALL OUTLETS SHALL BE MOUNTED VERTICALLY UNLESS OTHERWISE NOTED. COORDINATE ALL FINAL DEVICE REQUIREMENTS WITH ARCHITECT PRIOR TO INSTALLATION.
10. ALL CONDUITS SHOULD BE SUPPORTED IN COMPLIANCE WITH CODE REQUIREMENTS AND INSTALLED IN A MANNER AS TO AFFORD MINIMUM INTERFERENCE WITH OTHER TRADES. ALL CONDUITS ABOVE CEILING SHALL BE RIGIDLY SUPPORTED BY SUITABLE HANGERS FROM THE STRUCTURAL SLAB DECK OR FRAMING ABOVE INDEPENDENT OF THE CEILING, CEILING SUPPORT SYSTEM AND OTHER TRADE COMPONENTS. ALL CONDUITS SHALL BE CONCEALED UNLESS OTHERWISE NOTED ON DRAWINGS.
11. FIRE RATED SEALS SHALL BE PROVIDED FOR ALL CONDUIT PENETRATIONS THROUGH FIRE RATED FLOORS, WALLS, AND CEILINGS.
12. CONTRACTOR SHALL VERIFY ALL EQUIPMENT CONNECTION CONFIGURATIONS BEFORE PURCHASE. ALL DEVICES SHOWN ARE FOR REFERENCE ONLY, TO COMMUNICATE DESIGN INTENT, FINAL LOCATIONS SHALL BE VERIFIED PRIOR TO INSTALLATION. THIS NOTE SHALL APPLY TO, BUT NOT BE LIMITED TO, RECEPTACLES, SWITCHES, DATA PORTS, AUDIO/VIDEO DEVICES, AND TELEPHONE JACKS.
13. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL ABOVE CEILING REQUIREMENTS (PLENUM, NON-PLENUM, AIR HANDLING, ETC.) AS REQUIRED BY LOCAL AUTHORITY BEFORE THE INSTALLATION AND PURCHASE OF ELECTRICAL EQUIPMENT, MATERIALS AND DEVICES, WIRING, CABLING, AND THE ORDERING OF LIGHTING FIXTURES.
14. CONDUCTOR SIZES INDICATED ARE MINIMUM SIZES BASED ON 75°C COPPER CONDUCTOR. AMPACITIES OF CONDUCTORS DO NOT TAKE VOLTAGE DROP INTO CONSIDERATION. CONTRACTOR SHALL SIZE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS TO PREVENT A VOLTAGE DROP EXCEEDING 3 PERCENT AT THE FARTHEST OUTLET OF POWER, HEATING, AND LIGHTING LOADS, OR COMBINATION OF SUCH LOADS, AND WHERE THE MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST OUTLET DOES NOT EXCEED 5 PERCENT, TO PROVIDE REASONABLE EFFICIENCY OF OPERATION.

SHEET INDEX

E000 : ELECTRICAL SYMBOLS AND ABBREVIATIONS
E100 : ELECTRICAL PANEL LOCATION AND DEMOLITION PLANS
E101 : ELECTRICAL LIGHTING, POWER AND SYSTEMS PLANS
E200 : ELECTRICAL SCHEDULES

100% CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

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Drawing Title: ELECTRICAL GENERAL NOTES, LEGENDS AND SCHEDULES

Approved: Project Director

Project Title: Middleton VAH
Construct Pharmacy Cache

Location: Madison, WI

Date: May 13, 2013 | Checked: DS | Drawn: JSF

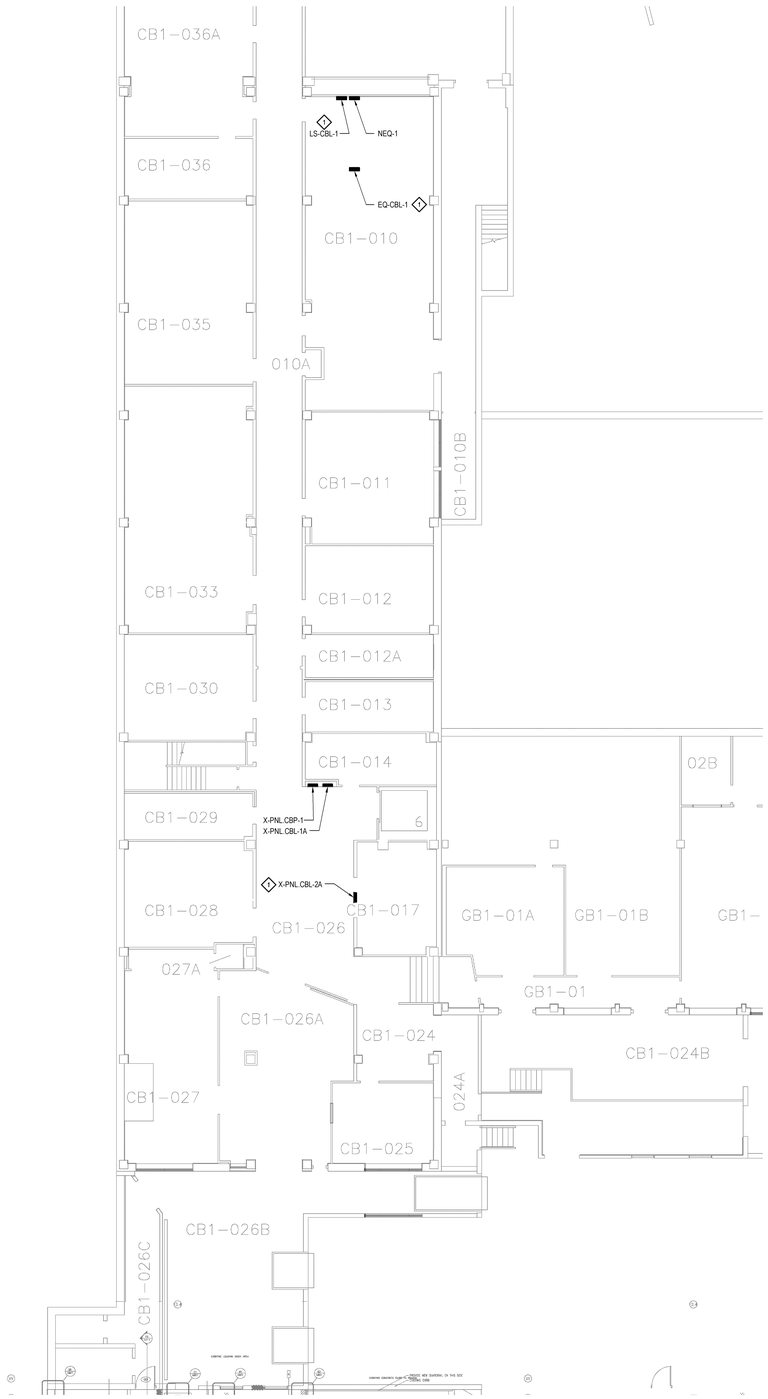
Project Number: 607-13-101

Building Number: 19

Drawing Number: E001

Office of Construction and Facilities Management

Department of Veterans Affairs



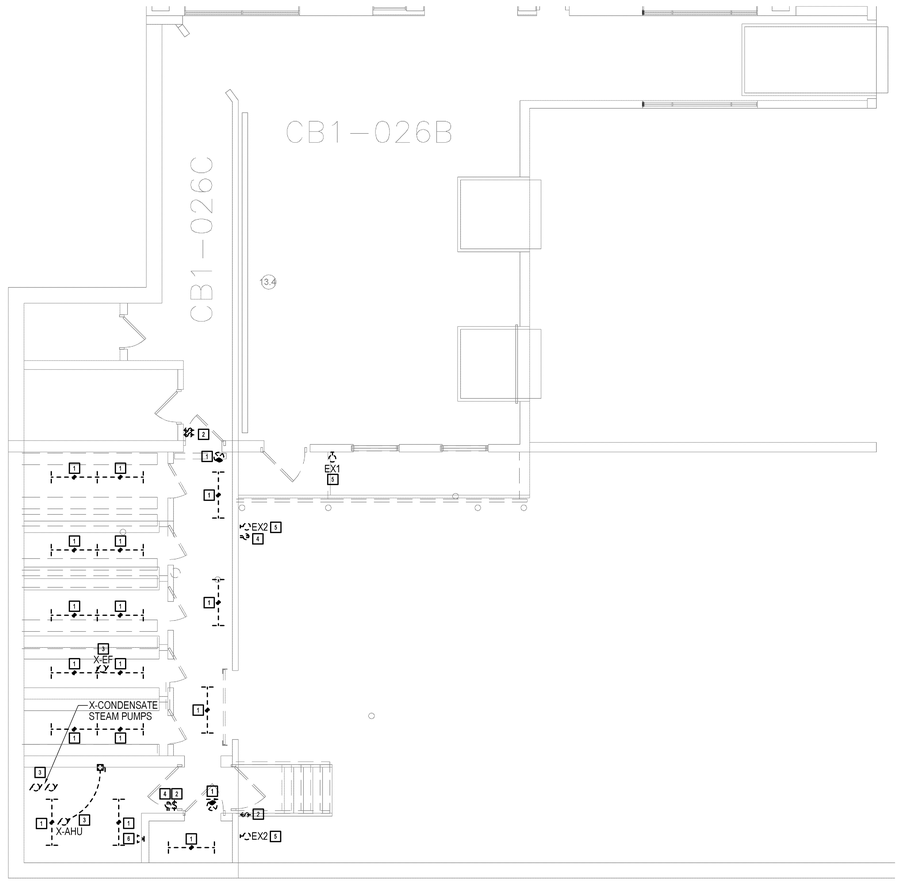
F2 ELECTRICAL PANEL LOCATIONS PLAN

3/32" = 1'-0"

PLAN NORTH

KEY NOTES

1. REFER TO PANEL SCHEDULES FOR NEW CIRCUITING REQUIRED TO SERVE THE PHARMACY CACHE AREA.



F1 ELECTRICAL DEMO PLAN

3/16" = 1'-0"

PLAN NORTH

DEMOLITION NOTES

1. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE AND ALL ASSOCIATED BRANCH CIRCUIT WIRING AND CONDUIT.
2. DISCONNECT AND REMOVE EXISTING LIGHT SWITCHES AND ALL ASSOCIATED WIRING AND CONDUIT.
3. DISCONNECT AND REMOVE BRANCH CIRCUIT FOR EXISTING MECHANICAL EQUIPMENT, INCLUDING MOTOR STARTER AND ALL ASSOCIATED WIRING AND CONDUIT.
4. DISCONNECT AND REMOVE EXISTING RECEPTACLE AND ALL ASSOCIATED BRANCH CIRCUIT WIRING AND CONDUIT.
5. REMOVE/SALVAGE EXISTING LIGHT FIXTURE FOR REUSE. REMOVE ALL ASSOCIATED BRANCH CIRCUIT WIRING AND CONDUIT.
6. DISCONNECT AND REMOVE EXISTING TELEPHONE OUTLET AND ASSOCIATED TELEPHONE WIRING AND CONDUIT.

100% CONSTRUCTION DOCUMENTS

Revisions:	Date

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Drawing Title: ELECTRICAL PANEL LOCATIONS AND DEMO PLANS

Approved: Project Director

Project Title: Middleton VAH
Construct Pharmacy Cache

Location: Madison, WI

Date: May 13, 2013 | Checked: DS | Drawn: JSF

Project Number: 607-13-101

Building Number: 19

Drawing Number: E100

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

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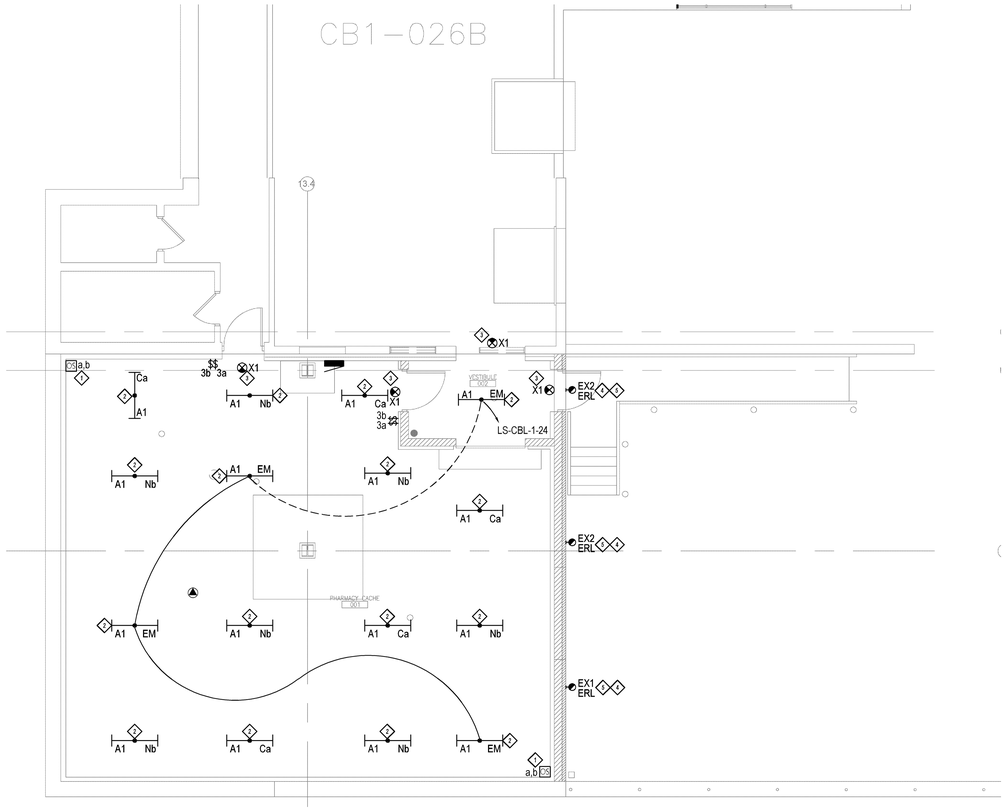
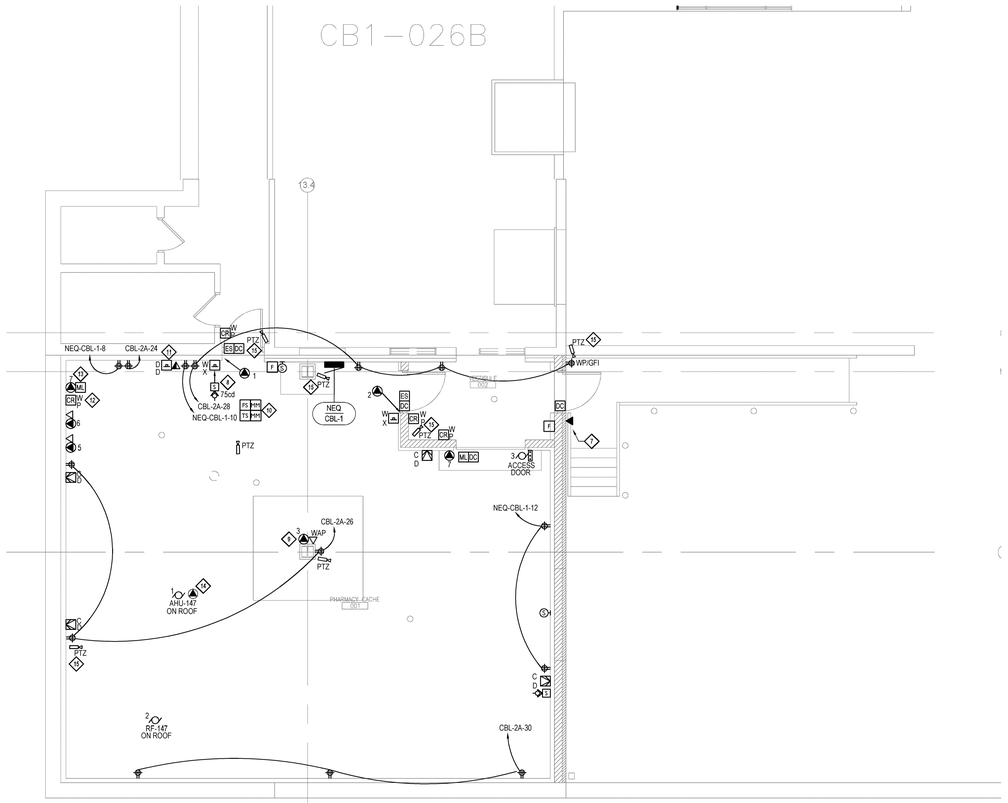


F2 ELECTRICAL LIGHTING PLAN

3/16" = 1'-0"

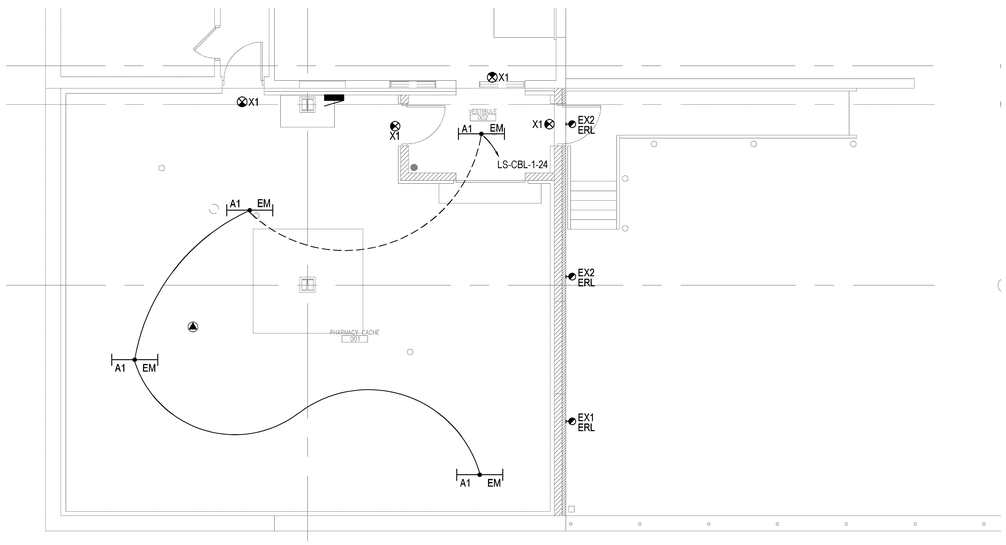
PLAN NORTH



F1 ELECTRICAL POWER AND SYSTEMS PLAN

3/16" = 1'-0"

PLAN NORTH



F3 ELECTRICAL EMERGENCY LIGHTING PLAN

3/16" = 1'-0"

PLAN NORTH

SHEET NOTES

1. LIGHT FIXTURES ON NORMAL BRANCH ("NB") TO BE CONNECTED TO CIRCUIT CBL-2A-32.
2. LIGHT FIXTURES ON CRITICAL/EQUIPMENT BRANCH ("Ca") TO BE CONNECTED TO CIRCUIT NEQ-CBL-1-6.
3. EXIT LIGHTS TO BE CONNECTED TO LIFE SAFETY BRANCH PANEL LS-CBL-1 CIRCUIT #40.

KEY NOTES

1. WALL MOUNT OCCUPANCY SENSOR 9'-0" AFF AND AIM INTO ROOM. FIELD VERIFY EXACT LOCATION AND THAT THERE ARE NO OBSTRUCTIONS BLOCKING THE IMMEDIATE FIELD OF VIEW.
2. COORDINATE EXACT LOCATIONS OF FIXTURES WITH LOCATIONS OF HVAC AND PIPING.
3. WALL MOUNT BOTTOM OF EXIT SIGN 0'-6" ABOVE DOOR.
4. MOUNT BOTTOM OF FIXTURE AT SAME HEIGHT AS EXISTING BUILDING LIGHTING AT EXISTING LOADING DOCK.
5. FIXTURE SHALL BE CONNECTED TO AN EMERGENCY BRANCH CIRCUIT AND CONTROLLED VIA CONTACTOR AND BUILDING PHOTOCELL.
6. NOT USED.
7. WALL TELEPHONE OUTLET - MOUNT AT 48" AFF. PROVIDE WEATHERPROOF CABINET.
8. MOUNT FIRE ALARM/STROBE ABOVE PUSH BUTTON ON WALL.
9. PROVIDE RECEPTACLE MOUNTED ON COLUMN AT 96" AFF TO SERVE WIRELESS ACCESS POINT POWER SUPPLY.
10. VERIFY QUANTITY AND LOCATION OF FLOW AND TAMPER SWITCHES WITH FIRE PROTECTION SYSTEM CONTRACTOR.
11. DURESS ALARM PUSH BUTTON TO BE LOCATED ON UNDERSIDE OF COUNTER TOP.
12. CARD READER FOR THE SAFE.
13. MAG LOCK TO BE INSTALLED INSIDE THE SAFE.
14. CONNECT AHU-147'S FACTORY INSTALLED GFI OUTLET TO PANEL NEQ0CBL-1 CIRCUIT 22.
15. ALTERNATE BID DEDUCT - DELETE CAMERA.

100% CONSTRUCTION DOCUMENTS

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Drawing Title	ELECTRICAL LIGHTING, POWER AND SYSTEMS PLANS
Approved: Project Director	
Project Title	Middleton VAH Construct Pharmacy Cache
Location	Madison, WI
Date	May 13, 2013
Checked	DS
Drawn	JSF
Project Number	607-13-101
Building Number	19
Drawing Number	E101

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

SPECIAL PURPOSE OUTLET SCHEDULE

MARK	TO FEED	LOCATION	KW	FLA	VOLT	PH	FEED FROM		BREAKER		TYPE			SEE
							PANEL	CKT	SIZE	POLE	RECPT	DIRECT	OTHER	NOTE
1	DOOR LOCK POWER SUPPLY	PHARM. CACHE	0.050	0.42	120	1	LS-CBL-1	18	20	1		X		
2	DOOR LOCK POWER SUPPLY	PHARM. CACHE	0.050	0.42	120	1						X		
3	WIRELESS ACCESS POINT	PHARM. CACHE	0.015	0.125	120	1	NEQ-CBL-1	14	20	1	X			
4	NOT USED	-	-	-	-	-	-	-	-	-	-	-	-	
5	HVAC CONTROL PANEL	PHARM. CACHE	0.5	-	120	1	NEQ-CBL-1	18	15	1		X		
6	JACE CONTROL PANEL	PHARM. CACHE	0.5	-	120	1	NEQ-CBL-1	20	15	1		X		
7	MAG LOCK POWER SUPPLY	PHARM. CACHE	0.050	0.42	120	1	NEQ-CBL-1	16	20	1		X		

MOTOR WIRING SCHEDULE

NO.	DRIVING	LOC.	HP	FLA	VOLT	PH.	FEED FROM		BREAKER		STARTER					DISCONNECT					REMARKS
							PANEL	CIRCUIT	SIZE	POLE	TYPE	FURN	INS	WIRED	LOC.	TYPE	FURN	INS	WIRED	LOC.	
1	AIR HANDLING UNIT AHU-147	PHARM. CACHE	1	30 MCA	208	3	NEQ-CBL-1	1,3,5	45	3	MAG	MFR	MFR	MFR	IU	DS	MFR	MFR	MFR	OU	
2	RELIEF FAN RF-1	PHARM. CACHE	1/6	4.4	120	1	NEQ-CBL-1	2	15	1	-	-	-	-	-	DS	MC	EC	EC	NU	
3	ROLL-UP ACCESS DOOR	PHARM. CACHE	0.5	2.5	208	3	NEQ-CBL-1	13,15,17	15	3	MAG/REV	MFR	MFR	MFR	OU	FD	EC	EC	EC	NU	

LIGHTING FIXTURE SCHEDULE

FIXT.	DESCRIPTION	LAMPING			VOLT	MOUNT	CEILING	MANUFACTURER	CATALOG NUMBER	ACCESSORIES	SEE NOTE
		NO.	TYPE	INPUT							
A1	4' LED ENCLOSED INDUSTRIAL	-	4170 LUMEN, 4100K	59W	120V	SURFACE	-	LITHONIA	VAP-59W-SYM		5,6
A1	4' FLUORESCENT ENCLOSED INDUSTRIAL	2	32WT8	59W	MVOLT	SURFACE	-	LITHONIA	DMW-2-32WT8-MVOLT-GEBIOPS-STFL-BCD		7
EX1	RELOCATED EXISTING EXTERIOR LIGHT										1
EX2	RELOCATED EXISTING EXTERIOR LIGHT										1
X1	SINGLE FACED, WALL MOUNTED EXIT SIGN - DAMP LOCATION RATED	-	LED W/ UNIT	1W	120V	SURFACE	VARIES	LITHONIA	LE-S-W-1-R-120277-DL		2,3,4

LIGHTING FIXTURE SCHEDULE GENERAL NOTES:

1. CONTRACTOR SHALL CONFIRM CEILING TYPE REQUIREMENTS PRIOR TO THE RELEASE OF THE ORDER.
2. CATALOG NUMBERS ARE TO PROVIDE GUIDANCE ONLY AND MAY NOT BE COMPLETE.
3. FIXTURES SPECIFIED TO MEET DESIGN INTENT.
4. PROVIDE ALL EQUIPMENT AND ACCESSORIES NECESSARY FOR A COMPLETE AND FUNCTIONAL INSTALLATION.

LIGHTING FIXTURE SCHEDULE KEY NOTES:

1. CLEAN, RELAMP AND REBALLAST FIXTURE PRIOR TO REINSTALLING IN NEW LOCATION. TOUCH UP PAINT IF NECESSARY.
2. FIELD SELECTABLE CHEVRONS SHALL BE APPLIED OR INSTALLED/REMOVED AS INDICATED ON PLANS AND AS REQUIRED BY ALL GOVERNING CODES.
3. PROVIDE NUMBER OF FACES AS INDICATED ON PLANS AND AS REQUIRED BY ALL GOVERNING CODES.
4. ALL EXIT SIGNS MUST MEET ALL CITY, STATE, VA STANDARDS AND NATIONAL CODES INCLUDING BUT NOT LIMITED TO IBC 1011 AND ANSI-A117.1 SEC 703.
5. VERIFY FIXTURE MOUNT PRIOR TO ORDERING FIXTURES.
6. BASE BID
7. ALTERNATE DEDUCTIVE BID

PANEL LS-CBL-1 (EXISTING)

MOUNT	SPACES	LOCATION	VOLTAGE	PH	WIRE	MAIN BUS RATING	MCB	MLO	WIRE	CONDUIT
SURFACE	42	RM. CB1-010	120/208	3	4	225A	-	225A	-	-

POLE	BREAKER		OUTLET			DESCRIPTION	VA	PHASE LOAD VA			VA	DESCRIPTION	OUTLET			BREAKER		POLE
NO.	POLE	AMP	LGT	REC	MIS			A	B	C			LGT	REC	MIS	POLE	AMP	NO.
1	1	20				BASEMENT FL.						EM. BASEMENT CORR. LT.				1	20	2
3	1	20				BASEMENT FL.						BASEMENT EXIT LT.				1	20	4
5	1	20				HOSPITAL CLOCKS						CODE ORANGE MENTAL HYGIENE				1	20	6
7	1	20				VISUAL PAGE						JCI CONTROL PNL. B2				1	20	8
9	1	20				~~BLOODBANK~~						EM. LT. AUDITORIUM				1	20	10
11	1	20				REC. B1078 WEST WALL						COMP. FIRE PROTECTION				1	20	12
13	1	20				REC. B1078 2 GANG (S)						EM. LT. C-010				1	20	14
15	1	20				REC. B1078 2 GANG (N)						REC. & LT. N WALL C-010				1	20	16
17	1	20				REC. C-036				100	**100**	**PHARMACY CACHE DOOR LOCKS**			**X**	**1**	**20**	18
19						-						REC. C-013				1	20	20
21	3	40				A/C C-120						REC. C-013				1	20	22
23						-				236	**236**	**PHARMACY CACHE EM. LIGHTS**	**X**			**1**	**20**	24
25	1	20				LT. B-07						~~TIME CLOCK FIRE ALARM~~				1	20	26
27	1	20				LT. TEL. RM. B-07A						LT. PIPE STORAGE RM.				1	20	28
29	1	20				LT. B-07						LIGHTNING SUPPRESSOR				1	20	30
31						-						LIGHTNING SUPPRESSOR				1	20	32
33	3					SPARE						LIGHTNING SUPPRESSOR				1	20	34
35						-						208 CB1-036AC				2	20	36
37	1	20				SPARE												38
39	1	20				JOCKEY PUMP C-035			2		**2**	**PHARMACY CACHE EXIT LIGHTS**	**X**			**1**	**20**	40
41	1	20				FIRE ALARM C-035						SPARE				1	20	42
						PHASE TOTALS:			2	336		:PHASE TOTALS						
						TOTAL VA:					338	:TOTAL VA						

PANEL CBL-2A (EXISTING)

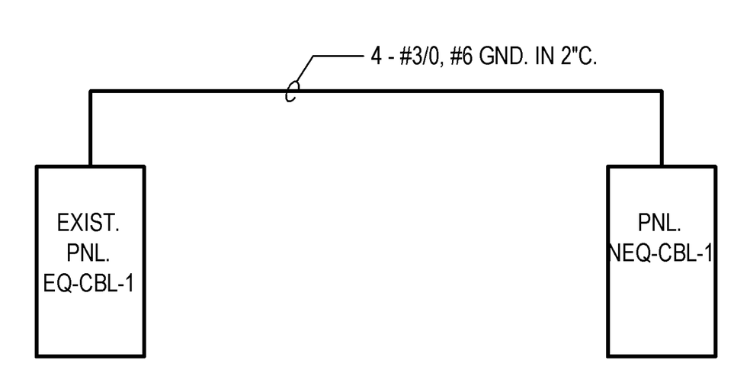
MOUNT	SPACES	LOCATION	VOLTAGE	PH	WIRE	MAIN BUS RATING	MCB	MLO	WIRE	CONDUIT
FLUSH	42	RM. CB1-026	120/208	3	4	200A	200A	-	-	-

POLE	BREAKER		OUTLET			DESCRIPTION	VA	PHASE LOAD VA			VA	DESCRIPTION	OUTLET			BREAKER		POLE
NO.	POLE	AMP	LGT	REC	MIS			A	B	C			LGT	REC	MIS	POLE	AMP	NO.
1	1	20				P - C016 NORTH WALL						RECYCLE ROOM BATTERY CHARGER				1	20	2
3	1	20				P - C016 EAST WALL						RECYCLE ROOM HEATER BLOWER				1	20	4
5	1	20				C016 SPARE						RECYCLE ROOM POP CAN BOILER				1	20	6
7	1	20				C016 EAST WALL						A/C ROOM C-025				2	15	8
9	1	20				P - C016 EAST WALL												10
11	1	20				P - C016 EAST WALL												12
13	1	20				P - C016 WEST WALL						SPARE TO CB1-027				3	20	14
15	1	20				P - C016 WEST WALL												16
17	1	20				P - C016 WEST WALL						BATTERY CHARGER CB1-027				1	20	18
19	1	20				SPARE						BATTERY CHARGER CB1-027				1	20	20
21	1	20				SPARE						BATTERY CHARGER CB1-027				1	20	22
23	1	20				SPARE				900	**900**	**PHARMACY CACHE RECEPT. - REFRIG.**		**X**		**1**	**20**	24
25	1	20				SPARE		540			**540**	**PHARMACY CACHE RECEPTACLES**		**X**		**1**	**20**	26
27	1	20				SPARE			720		**720**	**PHARMACY CACHE RECEPTACLES**		**X**		**1**	**20**	28
29	1	20				SPARE				540	**540**	**PHARMACY CACHE RECEPTACLES**		**X**		**1**	**20**	30
31	1	20				SPARE		418			**418**	**PHARMACY CACHE LIGHTING**	**X**			**1**	**20**	32
33	1	20				SPARE						SPARE				1	20	34
35	1	20				SPARE						SPARE				1	20	36
37	1	20				SPARE						SPARE				1	20	38
39	1	20				SPARE						SPARE				1	20	40
41	1	20				SPARE						SPARE				1	20	42
						PHASE TOTALS:		958	720	1440		:PHASE TOTALS						
						TOTAL VA:					3,118	:TOTAL VA						

PANEL NEQ-CBL-1 (NEW)

MOUNT	SPACES	LOCATION	VOLTAGE	PH	WIRE	MAIN BUS RATING	MCB	MLO	WIRE	CONDUIT
SURFACE	42	PHARM. CACHE	120/208	3	4	225A	200A	-	-	-

POLE	BREAKER		OUTLET			DESCRIPTION	VA	PHASE LOAD VA			VA	DESCRIPTION	OUTLET			BREAKER		POLE
NO.	POLE	AMP	LGT	REC	MIS			A	B	C			LGT	REC	MIS	POLE	AMP	NO.
1							3122	3650			528	RELIEF FAN RF-1 (MTR. #2)			X	1	15	2
3	3	45			X	AIR HANDLING UNIT AHU-1 (MTR.#1)	3122		3122			SPARE				1	20	4
5							3122			3493	371	PHARMACY CACHE LIGHTING	X			1	20	6
7								960			960	PHARMACY CACHE RECEPT. - REFRIG.		X		1	20	8
9									180		180	PHARMACY CACHE RECEPT. - COMPUTER		X		1	20	10
11										360	360	PHARMACY CACHE RECEPTACLES		X		1	20	12
13							288	303			15	WIRELESS ACCESS POINT (SPO #3)			X	1	20	14
15	3	15			X	PHARMACY CACHE COILING DOOR (MTR. #3)	288		388		100	MAG LOCK POWER SUPPLIES (SPO #7)			X	1	20	16
17							288			788	500	HVAC CONTROL PANEL			X	1	15	18
19								500			500	JACE CONTROL PANEL			X	1	15	20
21									180		180	ROOF RECEPACLE		X		1	20	22
23																		24
25																		26
27																		28
29																		30
31																		32
33																		34
35																		36
37																		38
39																		40
41																		42
						PHASE TOTALS:		5413	3870	4641		:PHASE TOTALS						
						TOTAL VA:	10,230				3,694	:TOTAL VA						



NOTE:

1. REUSE EXISTING 200A/3P SPARE BREAKER IN EXISTING PANEL EQ-CBL-1 TO FEED NEW PANEL NEQ-CBL-1.

F1 ONE LINE DIAGRAM

NO SCALE

100% CONSTRUCTION DOCUMENTS

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CONSULTANTS:

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Drawing Title: ELECTRICAL SCHEDULES

Approved: Project Director

Project Title: Middleton VAH Construct Pharmacy Cache

Location: Madison, WI

Date: May 13, 2013 | Checked: DS | Drawn: JSF

Project Number: 607-13-101

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Drawing Number: E200

Office of Construction and Facilities Management

Department of Veterans Affairs